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Coming next issue: Need trees for your layout? In the November issue we'll show you two ways to model great-looking trees for your railroad.



Oooooooohhhhh...



Aaaaaaahhhhhhhh...



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#### From the Editor

#### **Beyond your** basement

Neil Besougloff, Editor

Back in mid-summer at the National Train Show I witnessed first-hand that model railroading is far from a hobby practiced solely in windowless basements and unclaimed spare rooms.

The 2009 train show, held in conjunction with the National Model Railroad Association convention, was in downtown Hartford, Conn. Next year the convention and show will be in Model Railroader's hometown of Milwaukee, followed by Sacramento, Calif.; Grand Rapids, Mich.; and Atlanta, Ga.

The train show opens Friday morning of convention week and continues through Sunday. It's a huge step up from local train shows you may have attended in firehouses and school gymnasiums. This year's show marked the 19th anniversary of the event. It featured more than 150 exhibitors and occupied 145,000 square feet of convention space.

Standing in *Model Railroader*'s booth, I greeted dozens and dozens of readers hailing from Connecticut and adjoining states, and also from places far from New England, such as California and even Great Britain.

Our booth was near the front of the massive Connecticut Convention Center, so I also watched as hundreds of model railroaders walked into and out of the hall. I overheard comments on everything from new models of a Baldwin Centipede



diesel in HO scale and a jetengined Rail Diesel Car in N scale (the prototype set a speed record), to in-depth discussions about prototype railroads, to debates about where to go for lunch and the quality of the coffee served in the snack bar.

Overall I saw hobbyists with common interests having a wonderful time. Some were longtime friends, and others, judging by the number of handshakes, were new acquaintances.

The Milwaukee convention and show next summer will mark the 75th anniversary of the NMRA. From a discussion I had with the NMRA's president and vice president, plus discussions with members of the Milwaukeearea NMRA division, the 2010 event truly will be special.

It's not too early to mark your calendar for July 11-18, 2010. Contact your model railroading friends, and make the time and effort to attend the convention, train show, or both. You'll need to join the NMRA to attend the convention, but the show is open to everyone.

If you're more of a wallflower than the life of a party, don't worry. Trust me. It takes only a few handshakes to enlarge and enliven your circle of hobby friends. I witnessed that firsthand in Connecticut.

NEIL BESOUGLOFF

#### Contributing to Model Railroader

We welcome contributions from our readers, including articles, photographs, and prototype drawings. For detailed information on submitting material to MR, contact our editorial associate Eric Stelpflug at 262-796-8776, ext. 583, or mrmag@mrmag.com. Model Railroader assumes no responsibility for the safe return of unsolicited material. We assume unsolicited material is intended for publication by Kalmbach Publishing Co. unless otherwise noted. We assume letters, questions, news releases, and club news items are contributed gratis.

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#### More from the National Train Show





#### See all the products announced at the National Train Show

You'll find highlights of the 2009 National Train Show on page 10, however we took a lot more photos than are shown on those pages. For a complete listing of the more than 130 products announced at the show, additional photos, and contact information for manufacturers, click the Product and hobby news tab on our homepage.

#### **Bonus video for subscribers**



#### Paragon2 HO scale J-1E

Subscribers can watch us put this DCC-sound-equipped New York Central steamer from Broadway Limited Imports through its paces on our layout. This new model also has realistic puffing smoke.



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## News&Products



National Train Show 2009. Convention-goers are a blur of motion in a time-exposure photo taken at the 2009 National Train Show at the Connecticut Convention Center in Hartford, Conn. The event was held in conjunction with the National Model Railroad Association's national convention. Steven Otte photo

#### Hobby news

**Electronics take** control in Hartford: Digital Command Control and other model train control systems took center stage at the National Train Show in Hartford, Conn., in July. Seven manufacturers announced or displayed new DCC systems, decoders, or components at the show, held in conjunction with the 2009 National Model Railroad Association convention. Other companies announced new directcurrent power packs or proprietary control systems.

There were plenty of new locomotives at the National Train Show, too. Athearn, Atlas, Bachmann, Bowser, Broadway Limited, The Coach Yard, Fox Valley Models,

#### Calendar

November 13-15, 2009: Trainfest. Wisconsin State Fair Park Exposition Center, West Allis (Milwaukee), Wis. trainfest.org



Kato USA, Overland Models, Märklin, M.T.H. Electric Trains, and Walthers announced new motive power, with steam and modern diesels equally represented.

Two new manufacturers of lasercut wood structure kits, Imagine That Laser Art and Stella Scale Models, made their debuts at Hartford. Their products, along with many other exciting new items, are featured in our National Train Show special report, on the following pages and on our Web site.

#### HO scale locomotives



#### Electro-Motive Division GP40-2LW diesel locomotive.

Preproduction model shown. Road names, features, and price to be announced. Ready-to-run. Master Line. Atlas Model Railroad Co.



Electro-Motive Division GP15-1 diesel locomotive. Preproduction model shown. See-through grills, wire grab irons, and magnetic knuckle couplers. Road names and price to be announced. Ready-to-run. Athearn Trains



Baldwin Centipede diesel locomotive. Preproduction model shown. Baldwin demonstrator scheme, National Railways of Mexico, Pennsylvania RR (Brunswick Green, five-stripe passenger scheme or one-stripe freight scheme), and Seaboard Air Line (freight scheme). Dual-mode Paragon2 Digital Command

#### Highlighted in this issue

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Steven Otte

#### More on our Web site

This report shows only some of the new products announced at the 2009 National Train Show. For a complete list, go to www.ModelRail-roader.com and click on Product and Hobby News.

Control sound decoder, five-pole skew-wound motor with flywheels, and magnetic knuckle couplers. A-A sets, \$449.99; individual units, \$249.99. Ready-to-run. Paragon2 series. Broadway Limited Imports

#### HO scale freight cars



Pennsylvania RR class GLca hopper. Unpainted resin kit. Onepiece body and custom decals. \$41.99. Funaro & Camerlengo



Northern Pacific 52-foot flatcar. Undecorated resin kit. With straight side sill and fish-belly center sill. One-piece cast-resin body, separate underframe detail, wire details, and decals. \$38 plus shipping: \$4 for one kit, \$6 for two, \$8 for three or more. Speedwitch Media

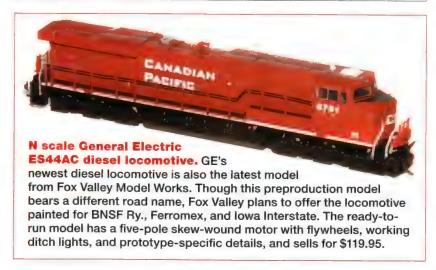
Evans 4,780-cubic-foot-capacity covered hopper. Archer Daniels Midland (new or blue paint schemes); Canadian Pacific; Dakota, Minnesota & Eastern; East Erie Commercial RR; Soo Line; and Union Pacific (Missouri-Kansas-Texas reporting marks). Metal wheelsets and Proto-Max magnetic knuckle couplers. \$29.98. July 2010. Ready-to-run. Gold Line. Wm. K. Walthers Inc.

Pennsylvania RR class XG and XH truss-rod boxcars. Canada Southern Line, Midland Line, produce, and ventilated; original or post-1905 lettering. Urethane craftsman kits with proprietary decals. Trucks and couplers not included. \$35 each. Westerfield



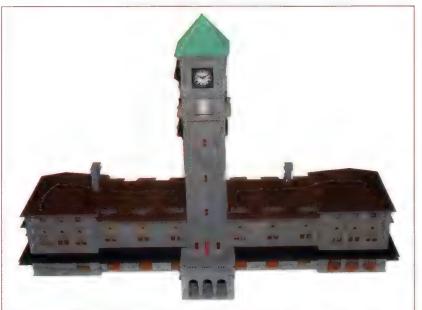


Navigator Digital Command Control system. ESU's new DCC system supports up to four infrared wireless throttles like those shown above. The base station controls up to 40 locomotives and 100 accessories and supports up to 21 functions per locomotive. A starter set with one wireless throttle costs \$289.50; additional throttles and infrared receivers are also available, sold separately.



#### News&Products





HO scale Mount Royal Station structure kit. Custom Model Railroads continues to add to its line of laser-cut acrylic structure kits. In addition to the station shown above, CMR unveiled a 20-story Art Deco-style apartment building, a seven-story office/retail building, a brick and concrete curtain-wall factory, and the 22-story Park Hotel. Prices were available only for the Park Hotel, which sells for \$375.



#### HO scale passenger cars



New York Central 4500-4599 series m.u. car. Preproduction model shown. Brass construction, etched-metal and wire details, and clear window glazing. Unpowered model, \$530; powered, \$580. Readyto-run. MTS Imports

Postwar 6-section, 6-roomette, 4-double-bedroom lightweight sleeper. Amtrak (Phase 1); Canadian National ("wet noodle" herald); Chicago & Eastern Illinois; Chicago & North Western; Erie; Great Northern: Louisville & Nashville: Milwaukee Road: Missouri Pacific; Chattanooga & St. Louis; New York Central; Northern Pacific: and VIA Rail. Detailed interiors, sprung diaphragms with etched-metal end gates, and magnetic knuckle couplers. Also available undecorated, \$64.95. Ready-to-run. Super Continental Line. Rapido Trains

#### **HO scale structures**



Hurst Boiler & Welding. Lasercut wood craftsman kit with weathered and aged shingles and detail castings. Production limited to 500 kits. Price to be announced. Bar Mills Scale Model Works



**Fallen barn.** Laser-cut wood kit. Tab-and-slot assembly with peel-and-stick trim. 4<sup>1</sup>/<sub>4</sub>" x 6<sup>3</sup>/<sub>4</sub>" footprint. \$87.50. Branchline Trains

Klein's Pharmacy. Laser-cut wood kit with cast-metal details, injection-molded plastic windows and doors, and printed color signs. \$34.95. JL Innovative Design

**Beggars Pouch Leather Co.** Laser-cut wood kit. Etched "brick" siding. \$49. Model Tech Studios



Owens Monumental Co. Inc. Laser-cut wood kit with resin and plastic details. Tichy Train Group windows and doors, resin tombstone casting, and plastic gantry crane. Footprint 3<sup>3</sup>/<sub>4</sub>" x 6<sup>1</sup>/<sub>2</sub>" (main building only). \$114.95. August 2009. Stella Scale Models

N scale locomotives
New York Central jet-powered
Rail Diesel Car M-497. Model
represents prototype that set a
speed record in 1966. Digital
Command Control with sound and
light-emitting diodes to simulate jet
afterburners. \$295. Ready-to-run.
Kato USA Inc.

#### N scale freight cars





Etched-brass kits. Pennsylvania RR class H30 and H30A covered hoppers, PRR class K7 stockcar, and Baltimore & Ohio class S-1 and S-2 stockcars. Prices to be announced. TrainCat Model Sales

#### N scale structures



Moose Lake, Minn., depot.
Preproduction mock-up shown.
Laser-cut wood kit based on Soo
Line prototype. Peel-and-stick
roofing. Price to be announced. Fall
2009. Monroe Models



Large scale Baldwin 2-4-4T Forney steam locomotive. This Sandy River & Rangeley Lakes steam locomotive is one of Bachmann's newest offerings. The ready-to-run 1:20.3-proportion model is also available undecorated, with an outside or inside frame. Part of the Spectrum line, the Forney will be available this fall for \$1,150.





S scale Pullman-Standard 5,344-cubic-foot-capacity boxcar. Offered in five paint schemes, this exterior-post boxcar is the latest freight car from Des Plaines Hobbies. The ready-to-run cars come in four road numbers per road name and are equipped with wire grab irons, etched-metal crossover platforms, and American Flyer-style knuckle couplers. The suggested retail price is \$44.98.

#### **News&Products**



#### Multiple-scale train sets

New York, New Haven & Hartford Comet articulated passenger train. Three-unit set. HO and N scale. Eight-pin Digital Command Control decoder socket and lighted and detailed interiors. Prices to be announced. Ready-to-run. Con-Cor International

#### **Electronics and controls**

Wireless Super Throttles and transceiver. Expanded 29-function support, step-by-step throttle option setup, and wireless operation via infrared, radio, or duplex radio. DT402 infrared throttle, \$185. DT402R radio throttle, \$235. DT402D duplex radio throttle, \$250. UR91 radio/IR receiver, \$149.99. UR92 duplex radio/IR transceiver panel, \$160. Digitrax Inc.

Police siren. Self-contained circuit with speaker runs on 12-18 volt alternating current or Digital Command Control track power. Push-button switch, 1.4" speaker, and two-minute automatic shutoff. \$19. Evan Designs



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#### Reserve these Kits Now!

HO CORN STORAGE SILOS & ELEVATORS 933-2975 \$69.98 November Delivery Includes Silos, 2 Elevators & 2 Conveyor Support Sections





HO PROCESSING CENTER
933-2976 \$69.98 December Delivery
Includes Main Building, 5 Tanks, 3 Distillation Towers,
Outside Stairway & Roof Vents



For more information or to find a hobby shop near you, call 1-800-487-2467 or visit walthers.com/ethanol

#### News&Products



Coach Yard announced several new passenger train consists it will release in the coming year. Among them is an eight-car set of the B&O's 1938 Capitol Limited, including a baggage-dorm-lounge, five sleepers, diner, and sleeper-buffet-lounge car. The all-brass cars will have detailed interiors and magnetic knuckle couplers. Prices are to be announced. Other trains to be released include the Pennsylvania's Broadway Limited and New York Central's 20th Century Limited.

**Tech 6 direct-current power pack.** Direct-control power pack includes controls for sound-

equipped DC decoders, such as Broadway Limited's Blue Line. Two versions available: 2 amp capacity for HO scale and 6A capacity for O scale. Two-amp unit, \$109.98; 6A unit, \$269.98. Model Rectifier Corp.

Digital Command Control three-amp boosters. SB3a Smart Booster: Add-on booster unit allows running more trains on DCC layouts, and adds capacity to handle up to four additional NCE Power Cabs, \$129.95. DB3a Booster: More power for more trains on DCC layouts, \$99.95. NCE Corp.

Tsunami KT1000 Digital Command Control decoder. For plugand-play installation in Kato HO scale diesel locomotives. Golden-white light-emitting diode headlight and backup light, 16-bit sound processor, and Hyperdrive control software. \$119.05. SoundTraxx

#### **>>**

#### Manufacturer listings

Athearn Trains 2883 E. Spring St., Suite 100 Long Beach, CA 90806 310-763-7140 athearn.com

Atlas Model RR Co. 378 Florence Ave. Hillside, NJ 07205 908-687-0880 www.atlasrr.com

Bachmann 1400 E. Erie Ave. Philadelphia, PA 19124 215-533-1600 bachmanntrains.com

Bar Mills Scale Model Works P.O. Box 609

Bar Mills, ME 04004 207-929-3400 barmillsmodels.com

BLMA Models 16623 Pear Blossom Ct. Whittier, CA 90603 562-712-7085 www.blmamodels.com

Branchline Trains 333 Park Ave. East Hartford, CT 06108 860-282-7080 branchline-trains.com

Broadway Ltd. Imports 9A East Tower Circle Ormond Beach, FL 32174 386-673-8900 broadway-limited.com The Coach Yard P.O. Box 593 Del Mar, CA 92014 818-796-8004 thecoachyard.com

Con-Cor International 8101 E. Research Ct. Tucson, AZ 85710 520-721-8939 all-railroads.com

Custom Model Railroads 3937 Keswick Rd. Baltimore, MD 21211 410-889-0010 cmrtrain.com

Des Plaines Hobbies 1468 Lee St. Des Plaines, JL 60018 847-297-2118 desplaineshobbies.com

Digitrax Inc. 2443 Transmitter Rd. Panama City, FL 32404 850-872-9890 www.digitrax.com

ESU LLC 815 60th Ave SE St. Cloud, MN 56304 320-202-0865 www.loksound.com

Evan Designs P.O. Box 2044 Broomfield, CO 80038 303-410-1118 modeltrainsoftware.com Fox Valley Model Works P.O. Box 970 Des Plaines, IL 60017 847-813-5172 foxvalleymodels.com

Funaro & Camerlengo 10 Funaro Ct. Honesdale, PA 18431 570-224-4989 www.fandckits.com

Imagine That Laser Art 8349 Aalbers Crescent, RR1 McGregor, Ontario N0R 1J0, Canada 519-726-9674 Imaginethatlaserart.com

JL Innovative Design P.O. Box 322 Sauk Rapids, MN 56379 320-746-2358 www.jlinnovative.com

Kato USA Inc. 100 Remington Rd. Schaumburg, IL 60173 847-781-9500 www.katousa.com

Micro-Trains Line Co. P.O. Box 1200 Talent, OR 97540 541-535-1755 www.micro-trains.com

Model Rectifier Corp. 80 Newfield Ave. Edison, NJ 08837 732-225-2100 www.modelrectifier.com Model Tech Studios P.O. Box 1497 North Hampton, NH 03862 603-964-5995 modeltechstudios.com

Monroe Models P.O. Box 1120 Cokato, MN 55321 320-286-2854 monroemodels.us

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#### Train order signals

The Operators column about train order signals in the August issue of *Model Railroader* was well presented. I'd like to add a note that the Southern Pacific rules used a two-position order board.

The board stayed red as long as a telegrapher/operator was on duty. The only time the board went green was when the station was closed, there was no one on duty, or there were no orders on the desk or pending orders from the dispatcher. It made life simpler for head-end crews, so they knew if they had to pick up orders or not.

Orders would be handed up by the operator or placed in the "hoops." If the board was red and there wasn't an operator outside or any orders in the hoops, the train had to stop. This also was the rule when it came to restricting orders, the delivery of which had to be signed for by the engineer or conductor.

Of course, the two positions of the board made for some humorous incidents, usually involving rookies or someone who had learned on a road that used other rules. The control mechanisms in the depot weren't different from those used on other railroads. The operator just had to remember not to lock the board in the middle position.

> Bob Carlson Mount Angel, Ore.

#### Benefits of tinkering

Every now and then, I read something in *Model Railroader* that's incredibly validating. In this case, it was the editorial in the August issue about tinkering.

My story deals with N scale steam too, but in my case, it was Moguls and Shays that were causing the problems rather than a Consolidation. They kept stalling on my Atlas code 55 turnouts with non-electrified frogs.

Everything mentioned in the editorial rang true. It was anything but an evening project. Altogether, it's taken weeks of tinkering with the gauge of driving and tender wheels, as well as making adjustments to the tender truck mounting screws and the wheel wipers.

After I finally finished, I gave a clinic in fine-tuning N scale steam locomotives to members of my local model railroad club. Was the



To learn more about David Barrow's Cat Mountain & Santa Fe, read the August 2009 issue of Model Railroader. Tommy Holt photo

#### Cat Mountain & Santa Fe

I was very excited to see the Cat Mountain & Santa Fe layout on the cover of the August 2009 Model Railroader!

I've been a long time fan of David Barrow and have built several railroads based on his domino techniques. In fact, my current layout, the Tisonia & Aloma Lines, was built that way.

It's great to see David's progress with the CM&SF and his approach to operations versus over-the-top scenery. Keep up the great work, David!

John Buckley Jacksonville, Fla.

project tedious? Of course! But it felt great to see everything work well after all of that tinkering.

Rick Della Fave Raleigh, N.C.

#### Trains of Thought

I began reading Model Railroader more than 60 years ago. At that time, I was detailing a Lionel O-27 plaster-on-plywood layout in the basement of my parents' home.

Over the years I've enjoyed reading about top-of-the-line modelers, but I often felt separated from them. While my HO scale layout operates well, it isn't excellent. Things always seemed to turn out better for John Allen and Whit Towers than they usually do for me.

Tony Koester's Trains of Thought column, however, goes a long way toward easing such feelings. I consider Tony to be one of the best present-day modelers and feel that he knows that there are a lot of modelers like me who also enjoy the hobby.

He's good at reaching out to include us. In the August 2007 issue, he wrote about a yard track humping up due to drying baseboard and insufficient rail gaps. I can identify with that! In the June 2009 issue, he gave a nod to the inclusion of some 1960s out-of-the-box plastic cars in freight trains. I've been doing that, too, but now feel a little better about it.

I'll always to look forward to articles in MR by the experts. But I'll continue to read Tony's column first each month because he's an expert who seems to know and appreciate me and where I am as a model railroader.

Richard J. Anderson Kennebunk, Maine

#### Correction

The number listed for Speedwitch Media on page 16 of the August 2009 issue is incorrect. The correct number is 203-453-6174. – *Ed*.

Comments, suggestions, and additional information on *Model Railroader* articles and departments are welcome in this column. Every comment will be read, but not all can be printed or answered. Make your statement in 300 words or less, and send it to Railway Post Office, *Model Railroader* magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail rpo@mrmag.com. Please include your name, city, and state.

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A single track inside the concrete wall receives gondola loads of scrap iron at the prototype foundry. These cars are unloaded and the metal is sorted into bins by a pair of cranes fitted with electromagnets. The other overhead structure shelters the second crane. Jim Hediger photos

## Switching and traffic at Freytag's foundry

I'm building Freytag's foundry for my model railroad, but I'm wondering how to incorporate it into my layout's operating scheme. How does it work? Is it big enough for its own switcher? What kinds of inbound and outbound freight cars are used at this plant?

Dwain Thomas, St. Louis

Dean Freytag's foundry article was published in two parts in the April and May 2009 issues.

The prototype foundry, part of a small-engine plant, was fed by a pair of overhead cranes working on a craneway about a city block long. A single track ran just inside the concrete wall beneath the entire length of the craneway. That track was long enough to hold about a half-dozen 50-foot gondolas of scrap iron that were unloaded using electromagnets.

The plant didn't have any visible means of moving freight cars, but I've seen similar size plants shift cars with a special electric windlass called a car puller. These devices have a cable that's hooked into one of the roping loops built into the corners of gondolas. Then the windlass can gradually pull the loaded car into position.

Many manufacturing industries use a somewhat riskier practice of

shoving cars with an industrial truck or forklift. The problem is how to stop the car once it's rolling.

For model railroad operating purposes, I'd add a single spot with an unloading hopper under the track to receive a covered hopper of dry foundry sand at the very end of the long spur opposite the sand preparation building.

The actual small-engine plant trucks its finished products to other nearby fabrication plants producing lawn mowers and yard implements. I'd add some free-lanced warehousing to the left end with a loading dock that's served by another spur track. That way I could use boxcars to haul away the finished products. – Jim Hediger, senior editor



Bins made of cross-braced steel H columns and heavy timbers sit alongside the track to segregate the various grades of scrap used in the plant's cupola furnace.



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#### **Information Desk**



Baltimore & Ohio's *Ambassador* leaves Fostoria, Ohio, en route to Detroit with a mixed consist of heavyweight head-end cars and postwar lightweight streamlined coaches in August 1964. Jim Hediger photo

#### Mixed passenger consists

After viewing a number of Midwestern train videos from the 1950s, I realized that many of the passenger trains included a mixture of lightweight and heavyweight cars. Can you explain how these combinations came about? Tom Cunningham, Danville, Ill.

Mixed consists of heavyweight and lightweight cars began to appear about 1936, and continued throughout World War II. As the war ended, America's railroads found themselves with a huge fleet of worn-out passenger cars. The larger, more affluent railroads quickly began replacing their older equipment with new lightweight passenger cars. Those orders quickly grew in size and turned into a race to stay competitive.

The initial emphasis was on fielding the top name trains in the country. Matching consists of new equipment went into service as quickly as the car builders could finish them. Most of these postwar streamliners received new headend cars as well as passenger cars, so everything in the train's consist matched from end-to-end.

Many of the less affluent railroads had to make do with what they had. The existing fleets of prewar heavyweight passenger cars were solidly built, so many of these were rebuilt or refurbished at a moderate cost. Their original trucks provided a smooth ride, so

most were fitted with new wheelsets and roller bearings. Some railroads, like the Baltimore & Ohio and Pennsylvania RR, had passenger car shops that were especially adept at this work. If the cosmetic upgrades and new interiors were well done, the traveling public seldom knew the difference.

Specialty cars, like all-room sleepers, simply had to be replaced, as the newer lightweight cars had completely different interiors. Companies with tight budgets bought small batches of new streamlined cars and added them to their existing heavyweight trains, and fresh paint jobs blended everything together.

Some railroads, like the Chesapeake & Ohio and the New York Central, concentrated on buying large fleets of new lightweight passenger-carrying cars. However, most railroads continued to upgrade and use their existing older head-end cars.

As rail travel declined through the 1960s, railroads didn't have the funds to invest in new cars, so they continued to operate these postwar equipment combinations right up to the beginning of Amtrak on May 1, 1971. – *J.D.H.* 

Send your questions about prototype railroading to Information Desk, *Model Railroader* magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail proto@mrmag.com. We regret we can't answer all the questions we receive.

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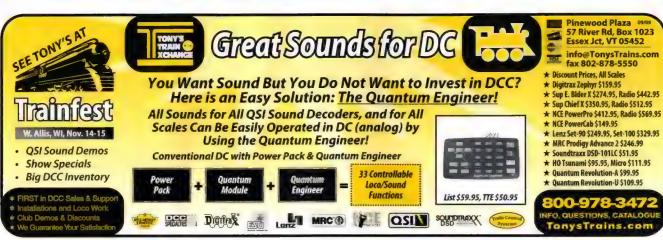
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Sealing wrap from the kitchen does a great job of holding small parts while they're airbrushed. Gerry Albers photo

#### Wrap holds small parts for painting

Securing small parts while they're painted with an airbrush is a difficult proposition. I've tried various means of holding these parts down, including clamps and double-sided tape. Clamps are rock solid, but have a tendency to leave an unacceptable "shadow" in the wrong places, and too much pressure can easily damage the part. Double-sided tape works great until you try to pry a delicate piece off the tape, a situation that often results in broken or damaged parts.

Occasionally I get a blinding flash of genius, and Glad's Press'n Seal plastic sealing wrap recently afforded me that opportunity. I needed to secure laser-cut parts of a small branchline station for my HO scale Deepwater District of the Virginian Ry. [featured in Model Railroad Planning 2005 – Ed.].

As I reluctantly made my way to get the double-sided tape, the flash occurred and I made a quick detour to the kitchen (as I write this, my wife is totally unaware that the box is missing).

I tacked a piece of Press'n
Seal sealing wrap to a piece of
plywood to keep the sheet in
place. A small amount of
pressure on each small part
stuck it to the sheet with sufficient adhesion to allow normal
airbrushing. Yet, the adhesion
was weak enough to allow safe
removal of the pieces. Note that
the photo is not reversed, as the
trademark and words are printed
on the sticky side of the sealing
wrap to appear correctly if someone is sealing the top of a bowl.

Modelers should test any organic-solvent-based paints on this plastic material before using it in this application. – Gerry Albers, Cincinnati, Ohio

#### Opening paint jars

Even with every precaution, occasionally one is faced with having to open jars of paint where the cap is stuck tight on the bottle. In the past, I'd resorted to using a pipe wrench, but found that though it was effective, it often destroyed the cap in the process.

A better approach is to use a strap wrench, which has a flexible rubber strap that grips the cap.



Here's a common strap wrench that's available from most hardware stores and home centers.



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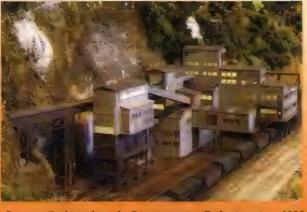
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#### **Workshop**



Even pressure from a strap wrench makes short work out of opening stuck paint bottle caps.

To increase the tool's effectiveness, I often wear a rubber dishwashing glove on my left hand to strengthen my grip on the bottle. Now opening almost any bottle of paint is a matter of applying torque with the strap wrench and holding or twisting the bottle in the opposite direction.

A word of caution. If the cap is really stuck tight, I use a second strap wrench to hold the glass bottle in case it breaks under the pressure. – Vince Pugliese, Toronto, Ontario, Canada

#### Wheel cleaner

I once saw a wheel cleaner that had small brass brushes you held against locomotive wheels to clean them. Is this item still available, and where I can I get one? Bill Law, Muscatine, Iowa

You're looking for one of the Kadee or Micro-Trains Line "Speedi" wheel cleaners. Three sizes are offered: MTL sells one for N scale, and Kadee offers its no. 236 for HOn3 to O scales, and no. 843 for G scale. Check the tools section of both firm's Web sites at kadee.com or micro-trains.com. These cleaners are also available from most hobby dealers. – J.D.H.

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#### Scenery Step by Step



A farm scene would be incomplete without fields. Cody Grivno shows you how he added soybean and wheat fields to the HO scale Milwaukee, Racine & Troy. Photos by the author and Bill Zuback

### Two farm fields in a compact space

Okay, I'll be honest. When I set out to write this month's Step by Step, I was intending to simply add a wheat field to the HO scale Milwaukee, Racine & Troy. As you'll read, things didn't go as planned, and I wound up adding two partial fields to our club layout.

Modeling a field that looks larger than a garden requires space, and a lot of it. That's why I modeled portions of two fields. I placed the wheat and soybean fields at the edge of the layout, suggesting that the crops continue into the aisle.

However, adding a field to your layout is more than just sticking plastic wheat strips or a selfadhesive mat to your scenery base. Farm grade crossings, tall grass between the field's edge and railroad right-of-way, and shelter belts can enhance the realism of your scene. Oh, and don't forget to add turn-around areas for your tractors. Crops don't run straight into the fence or into the shoulder of the ballast.

If your layout is set in farm country, fields are a must. After all, your elevator needs commodities to load into those hoppers and boxcars.



The Busch wheat field strips (no. 1204) are molded in tan plastic. Though that's a realistic color for harvest season, I wanted the wheat to look green as it would in early summer.

Since I wasn't concerned about even paint coverage, I didn't apply a primer coat to the strips. Instead, I sprayed them with Polly Scale Reading Green. After the Reading Green dried, I sprayed the top 1/8" of the strips (the head) Weyerhauser Green and the base with Polly Scale Dirt.



The wheat strips have delicate detail that can easily be damaged, so don't twist them from the sprue. Instead, use a pair of sprue cutters (shown at left) or spure-cutting tweezers to remove the strips from the plastic carrier.



Taking a cue from Model Railroader associate editor Kent Johnson, for reference I taped prototype photos of farm fields located next to a railroad on the backdrop. There are several resources for railroad photos on the Internet, but the two I used were www.railpictures.net and www.rrpicturearchives.net.

Keeping prototype photos nearby eliminates a lot of guesswork with scenery. You can see how grass and weeds grow along the edge of the tracks, where fences should be installed, and how rural grade crossings look, among other things.

#### Step 3 Along the right-of-way

The area between the railroad right-of-way and the farm field is typically scrub land with weeds and tall grass. To re-create this, I added the scenery in layers.

First, I applied an 80/20 mixture of white glue and water along the edge of the ballast with a ½" paint-brush. With the diluted glue still wet, I sprinkled in Woodland Scenics burnt grass, earth blend, and soil turf with a spoon.

Then I sprayed the area with 70 percent isopropyl alcohol, let it soak in, and applied Woodland Scenics Scenic Cement with a pipette.

With the Scenic Cement still wet, I used a Noch Gras-Master to apply Woodland Scenics medium green static flock. The fibers are about shin high on an HO scale figure, which suggests there is tall grass along the right of way without making it look overgrown.

When working with static grass, it's a good idea to lay a damp paper towel over the parts of the scenery you don't want covered with fibers. I didn't, and I wound up with static grass in the ballast.

To provide contrast to the shorter Woodland Scenics static flock, I planted random patches of Busch no. 1304 late summer grass. The grass comes on an 81/4" x 1111/16" sheet and has an adhesive backing.

I tore off tufts with a pair of tweezers, dipped them in full-strength white glue, and pressed them into the ground foam. I set patches of burnt grass at the edge of the ballast to suggest a weed-sprayer train has applied herbicides in this area.

As the prototype photos in step 2 suggest, the railroad right-of-way isn't pretty. The grass and weeds are a mixture of light and dark green, yellow, and burnt grass. In addition, there is usually some scrub and rugged undergrowth mixed in with the tall grass.

To capture that look in this scene, I applied yellow grass and medium and dark green coarse turf. If the turf doesn't settle between the static grass fibers, use a toothpick to press the clumps into place.



#### Step 4 Planting the fields

Planting the wheat strips individually would be time consuming, so I attached them to Evergreen .020" black styrene sheet with Plastruct Bondene. To speed up the gluing process, I put the Bondene in an A-West stainless needlepoint applicator bottle. This is far quicker than applying the glue with the supplied brush.

**Uh oh!** When I came back to work the next morning, the styrene beneath the wheat strips had curled. I tried heating the styrene under warm water to straighten it, but that didn't work (and it caused some of the paint to come off.) I couldn't apply pressure from the top, either, or I'd crush the wheat. I had no choice but to toss my "hilltop wheat field" in a scrap box.



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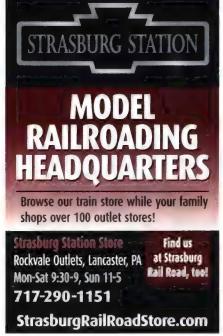
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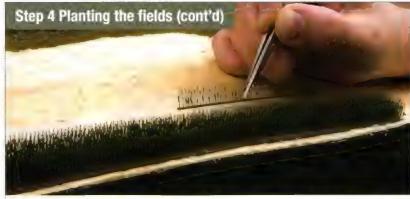


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#### Scenery Step by Step



Fortunately, I had a few strips of leftover wheat, so I planted them one by one. I secured the strips to the layout with latex adhesive caulk. If you use latex adhesive caulk, pick a color that matches your scenery base. I used tan here, but brown would also have worked. Avoid white or other bright colors that will stick out under the scenery.



**Unfortunately, I didn't have enough** wheat left to suggest a large field. However, as I was working on the field, we received new self-adhesive scenery mats from Faller, including no. 180471, germinating seeds. This could pass for soybeans (sort of), so I cut the mat to fit and attached it to the layout with full-strength white glue. These mats conform well to contours, so they work great for hilly scenes.



As Tony Koester reminded us in the May 2009 installment of "Trains of Thought," farm fields can't be planted in straight rows right up to the fence (or in this case, ballast) because the farmer needs room to turn his tractor. Since farm equipment is larger today than in the era Tony is modeling, I left a 2" unplanted turn-around area at the edge of the field. I filled this area with soil ground foam, Woodland Scenics medium green static flock, and coarse ground foam. I sprinkled some soil ground foam onto the mat so it would blend into the adjacent scenery.



The inspiration for this grade crossing came from Soo Line Standards: Vol. 3 published by the Soo Line Historical & Technical Society. This plan features a single course of planks on the outside and gauge sides of the rail. Instead of using stripwood, I cut pieces from a Blair Line two-lane laser-cut wood grade crossing kit and used sanding sticks to get the wood to the correct thickness.

Then I attached the wood crossing planks to the plastic ties with cyanoacrylate adhesive. I used accelerator to make the bond almost instantaneous. Then I stained the planks with an India ink wash (2 teaspoons ink to 1 pint 70 percent isopropyl alcohol).



I used Highball Products N scale limestone ballast to fill between the planks on the gauge side of the rail. To prevent the ballast from drying solid on the surface and loose below, I applied it in two layers. First, I brushed the diluted white glue I used in step 3 between the planks and then sprinkled on some ballast. Once the diluted glue dried, I vacuumed up the excess granules and applied a second layer of ballast. I soaked the second layer of ballast with 70 percent isopropyl alcohol and the applied Woodland Scenics Scenic Cement with a pipette.

To finish the scene, I added crossbucks (see the photo on page 32), and I plan to add some fencing between the right-of-way and fields.



Shelter belts, or windbreaks, are commonly planted along the perimeter of fields to prevent wind damage and soil erosion. I put three Scenic Express Ready-Made trees between the wheat and soybean fields to suggest a larger shelter belt. Then I added some deadfall and clump foliage on the shelter belt floor. MR







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# How to detail your station station scenes

A guide to realistic placement of figures, signs, and ancillary items

layout can potentially include one. There are many great commercial kits that make modeling stations easy, however to create an authentic scene the project requires more effort than simply placing a depot and platform next to the tracks. To realistically model a station as a central location of activity in a city or town on your layout, you'll want to include period-appropriate figures, signs, and posters, along with many other key details.

The following photographs and call-

assenger stations add interest to a model railroad, and nearly every

The following photographs and callouts demonstrate how I've added these details to compose several realistic passenger station scenes. MR

V.S. Roseman is a frequent contributor to Model Railroader magazine and a renowned hobby photographer.

By V.S. Roseman Photos by the author

Athearn no. ATH26371 Checker
A8 taxi awaits passengers from
the arriving train. Classic Metal
Works and Sylvan Scale Models
also offer HO scale taxis. Additional cab options, including
those decorated in maroon or
black fleet colors, are available in

O and N scales too.

I painted this Bachmann no.
44209 phone booth olive green
and added computer-printed
signs. Bachmann and Life-Like
booths are available in sets of HO
and O scale railroad details. More
contemporary phone shelters
with side panels are also available in N, HO, and O scales.

IELODERMA !

Figures posed in motion, like this woman and child walking toward the train, are useful for representing action along the platform. However, figures in extreme action poses tend to appear artificial. Use figures in more subtle poses so it isn't so obvious they aren't really moving.

Candy machine, Peco no. LK21

### **Platform figures**

This HO scale (1:87.1) Waithers Cornerstone Series no. 933-2920 mission-style depot, patterned after a Santa Fe prototype, serves as the gateway to the fictitious community of Heloderma, N.M. Although the arriving single-coach local train doesn't draw as much attention as the celebrated *Chief*, the selection and arrangement of figures and details on the station platform help establish a sense of anticipation.

Other ideas for placing figures include a cab driver standing next to his taxi, a station agent standing on the platform, and passengers exiting from waiting room doors. A baggage room attendant standing with a cart filled with sacks and boxes denotes the arrival of a train. Note that a load of mail or express freight often has one or more handlers nearby.

A few Preiser or Woodland Scenics figures seated on a bench reading newspapers or standing on the platform with luggage suggest that a train will be arriving soon.

HELODERMA

The telegraph sign is a scaled print of a photo.

A sandwich sign displays connecting local and long-distance bus schedules. Classic Metal Works and Athearn sell HO scale buses suitable for modeling the 1950s. Jordan has a 1940s HO scale bus, while Busch has more contemporary offerings. Athearn has N scale buses, too.

Baggage scale, Peco no. LK22 Bishops crook lamps illuminate the platform. You can simulate these by bending a piece of .024" brass wire (2" diameter in HO scale) into a hook about 2 scale feet wide. Use a no. 73 bit to drill out the center of a Tichy no. 8027 reflector and insert the wire to make a simple HO scale lamp.

Trash can, Funaro and Camerlengo no. 605

# Station and platform details

I built my O scale (1:48) Hunterdon Junction commuter station to resemble a depot typically found in the eastern United States. The choice of trim colors, the placement of platform canopies, the type of adverting posters, and other station details can help define a particular period or setting for your station.

To make contemporary posters, photograph real ads displayed at train or bus stations. Reduce prints of these posters to scale using a color copier or computer image-processing software. Vintage posters are available in old magazines or through online sources. Several model railroad suppliers, such as Blair Line, JL Innovative Design, and others, offer printed sheets of posters in various scales.





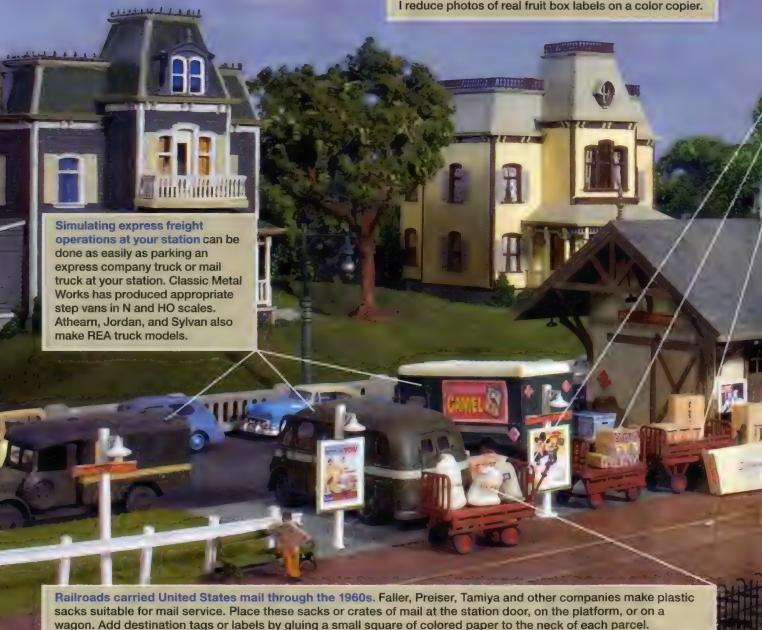
## Mail and freight at the station

Here I've used an Atlas HO scale structure of

Maywood Station to model my Atlantic Avenue station. This busy suburban stop features numerous passengers and parcels bound for Atlantic City. Although the business of moving people was important to many railroads, handling mail and express freight often represented a more significant source of revenue. This scene highlights many of the details associated with moving and storing freight about the station and platform.



Until the 1960s, perishable fruit was often shipped by express. Fruit boxes vary in size, but some are 12" x 12" x 24". I cut box forms from balsa or basswood sticks and glue labels on the ends. To make these labels, I reduce photos of real fruit box labels on a color copier.

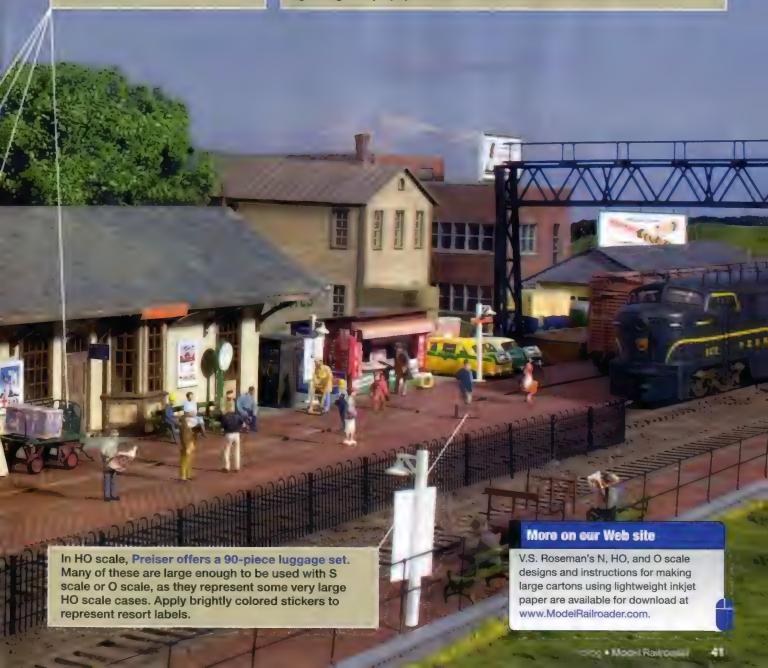


Most railroad stations had one or more four-wheeled express wagons. A great number of these were painted in Railway Express Agency (REA) green with a red underbody and wheels. Other wagons were owned by the railroads and were painted in the passenger color scheme or in Pullman green.

Where business warranted the use of more than two wagons, handlers used a gasoline or battery-powered tractor. Fourwheel wagons are available in plastic kit form from Grandt Line in HO and O scale, and from Jordan in HO scale. Small, threewheel tractors and four-wheel modern wagons are available from Kibri.



Refrigerators, washing machines, mattresses, bikes, and other items come in corrugated cardboard boxes, and these are often decorated with the company logo or large printed letters identifying the contents. Tichy, Preiser, and Merten make scale-sized crates, but shipping cartons are harder to find in any scale. Instructions for making a large carton using lightweight inkjet paper are available at www.ModelRailroader.com.





# Modeler's guide to passenger platforms

Information to make your station scene look like the prototype

By Andrew Roth • Photos by the author

f you model passenger or commuter operations, you're going to need one or more platforms for your stations. These platforms can be simple affairs with a gravel surface or more ornate with brick pavers in a herringbone pattern. No matter what type of platform you need, modeling it accurately is the key to a realistic station scene.

There are two styles of passenger platforms, low and high level. The former are built below the height of a passenger car floor, while the latter are built at car-floor level. But not all platforms are alike. From style to size to surfacing material, there are many platform variations. Let's take a look at prototype platforms found at commuter and intercity passenger stations.

### Low-level platforms

Low-level platforms are the more common of the two styles. Early versions included wood plank platforms and timber boxes surfaced with cinder, gravel, brick pavers, or concrete. The Amtrak Dash 8-32BWH no. 513 eases a Metrolink commuter train up to the island platform at Burbank, Calif. Safety stripes, lights, and a mini-high platform are a few of the details visible in this photo.

timber box platform quickly became the more popular of the two styles, and is still used by Amtrak and many commuter railroads. See fig. 1.

Timber box platforms are typically constructed using 4" wide creosote-treated Douglas fir timbers. The timbers are stacked to the desired height and nailed together. Then steel tie rods, with steel end plates, are installed through the timbers on 5'-4" centers.

Cinders, gravel, wood planks, and brick pavers were used as surface material for platforms during the late 1800s and early 1900s. The pavers proved successful and are still used today. Gravel is used for temporary platforms and at stations with low ridership.

In the 1930s, railroads began using asphalt to surface platforms. This became more common after World War II, when asphalt started being used more frequently for road projects.

A sub-type of low-level platforms is the crosswalk platform, shown in **fig. 2**. This is basically a wide crosswalk for passengers to board and alight from trains on multi-track lines where there is no room for an island platform.

### **High-level platforms**

In stations with high ridership and at locations where it's important to get people on and off trains quickly, high-level platforms are used. This style of platform, shown in fig. 3, is mostly found on high-speed rail lines, rapid transit, and commuter railroads.

High-level platforms are built to the height of passenger car floors. They're typically constructed of wood timbers, cast-in-place concrete, or pre-cast concrete. The pre-cast concrete can be supported with steel or concrete beams or with cast concrete walls. Metra, Chicago's metropolitan commuter railroad agency, has installed composite resin planks at a few of its stations. The material is significantly lighter than concrete.

Building high-level platforms adjacent to tracks that carry both freight and passenger trains requires careful planning. Illinois Central RR built its high-level timber deck platforms, shown in fig. 4 on the next page, 4'-3'/2" above the railhead and 5'-7" away from the track centerline. These tight clearances meant freight trains had to pass the platforms at slow speeds. Timbers were used instead of concrete there because any damage caused by passing freights would be cheaper and easier to repair.

Railroads have also come up with innovative ways to support freight operations in passenger territory. The Northern Indiana Commuter Transportation District (NICTD) recently built high-level platforms at three of its stations. Gantlet tracks were installed to keep passenger trains close and freight trains away from the platform edge.

### Platform dimensions

On November 1, 1920, the Interstate Commerce Commission's General Order 22 took effect, which established national standards for clearances away from the track and affected platform locations. Order no. 22 was amended on May 14, 1969. The ruling states that low-level



Fig. 1 Timber box platform. The patched, gray asphalt and faded yellow safety line suggest this is an old platform. Besides asphalt, timber box platforms were surfaced with cinders, concrete, brick pavers, and gravel.



Fig. 2 Crosswalk platform. This style of platform is used on multi-track lines where island platforms can't be built. This crosswalk platform has warning lights and bells to alert passengers to oncoming trains.



Fig. 3 High-level concrete platforms. The Metrolink station at the University of Missouri-St. Louis has a concrete platform mounted at car-floor level for loading and unloading passengers rapidly from trains in both directions.



Fig. 4 High-level wood platforms. Illinois Central used wood platforms on lines that handled both freight and passenger trains, such as this one in Homewood, Ill. Tight clearances required freight trains to pass the platforms at slow speeds.



Fig. 5 Using the step box. At locations with low-level platforms, such as Spring-field, III., the conductor assists passengers on and off trains with a step box.

platforms up to 4" above the rail must be a minimum distance of 4'-6" from the track centerline. Low-level platforms 8" above the rail must be at least 5'-1" from the centerline.

Many low-level platforms are built at railhead level and up to 4" above it. At these locations, conductors place a step box on the platform to help passengers board and alight from cars. See fig. 5.

Metra and the NICTD built their platforms 8" above the railhead. The Chicago & North Western and Milwaukee Road built the front of their platforms 5'-6" from the centerline of the nearest track, a distance Metra also adopted.

In greater Chicago, the typical platform outside of the tracks is 10 feet wide. Island platforms (those between tracks) are generally wider, ranging from 12 to 16 feet. The width of platforms is dictated by what's in the middle of the platform, such as stairs, elevators, benches, light poles, canopy roof columns, windbreaks, and warming shelters.

Metrolink, the Los Angeles commuter rail system, built its low-level platforms 8" above the railhead and 5'-4" from the centerline. Its outside platforms are 16 feet wide, and its island platforms are 25'-10" wide.

The New Mexico Rail Runner uses Bombardier tri-level coaches and has platforms similar to Metrolink's. The only differences are that the Rail Runner platforms are 20 feet wide and 3 to 4 cars long.

Platforms for intercity passenger train service are slightly different. Amtrak's low-level platforms are 10 feet wide at unstaffed stations and 12 to 15 feet wide at staffed stations where baggage can be checked. Its island platforms are 20 feet wide, depending on clearances.

The surfaces of Amtrak's low-level platforms are 8" above the railhead. The front edge is 5'-1" from the centerline.

### **Locations and lengths**

Railroads build platforms on straight and curved track depending on the station location. Some stations have platforms that are built near the start of a curve, so they have both straight and curved sections.

The length of a platform can vary to accommodate from one car up to an entire train. Platform length is determined by the highest number of passengers boarding a train, the number of cars in a train, and additional braking-distance length (engineers appreciate a little extra platform length when attempting to brake a train from 70 mph to stop on a dime). The table in **fig. 6** has suggested platform lengths for commuter trains with 85-foot cars.

The platform length for a train with end vestibules, which are common on single-level intercity cars, depends on the car's length and how many vestibules will be opened. If the last car of the train has two vestibules and the rear vestibule will not be opened, the platform can be shortened by almost the entire length of the last car.

Commuter train platforms don't have to be the same length as a train, either. In fact, it's realistic to have platforms shorter than the train. For example, commuter trains running into downtown Chicago usually fill the front cars first. At stations with short platforms, the engineer will stop the first few loaded commuter cars beyond the platform and open doors on the cars with empty seats. Conductors will make announcements such as "The rear two cars will not open at the next station. Please move to the third car to exit the train."

Likewise, it's not necessary for intercity passenger train platforms to be the same length as the train. The practice of stopping a train multiple times at a short platform allows passengers to board and alight from cars without walking though the train. I saw a long Amtrak *Eagle* make three stops at the short Joliet, Ill., platform so that each car could have its turn loading and unloading passengers.

High-level platforms, such as the one shown in fig. 4, are usually built long enough to serve all of the cars in a train. This allows a large number of passengers to board and alight in a small amount of time. Therefore, building a high-level platform shorter than a train length is counterproductive to the purpose of this style. An exception would be a short high-level platform at a station with low ridership.

### Adding platforms

Modeling a station platform is easier than you think. The main elements are the front and back curbs and the platform surface. The curbs can be made from stripwood a scale 4" wide. If the platform is new, stain the wood black. If it's older, use gray stain.

If you're modeling newer platforms, the top of the timber should be 8" above the top of rail. Older platforms can be lower, even down to the top of the crosstie.

The platform surface should be relatively flat. A concrete platform is easy to model with plain styrene sheet. Just scribe expansion joints 8 scale feet apart longitudinally and paint it gray.

You can also use plain styrene to model asphalt platforms. Use black paint for newer platforms and gray for older ones. The yellow safety line should be bright or faded according to the platform's age.

There are a variety of injectionmolded plastic brick sheets that would work well for modeling a platform with brick pavers. The paver patterns varied, so check photos for your favorite prototype.

For gravel platforms, brush a 50/50 mix of white glue and water onto the surface. Then sprinkle fine sand or ballast into the diluted glue. You may need to do this twice for sufficient coverage. Gravel ramps can also be found at the ends of various low-level platforms for maintenance vehicle access.

You can complete your platform scene by adding utility poles, light poles, benches, trash cans, and fencing. If your layout is set after 1980, don't forget to add station signs parallel to the platform in addition to those on the depot. You may also want to install sidewalk connections to the depot and a few parking spaces to help complete the scene. – A.R.

### Detailing a station platform

To make a station platform look complete, there needs to be details and lots of them, as you can see in the prototype photos. Depots, shelters, lights, advertising posters, benches, and garbage cans should all be part of the scene. And don't forget pedestrian access, which can consist of sidewalks, stairs, ramps, elevators, or any combination of these items.

Number of cars	Platform length for cars with end vestibules	Platform length for cars with center vestibules	
1	85 feet	20 to 40 feet*	
2	170 feet 125 feet		
3	255 feet	210 feet	
4	340 feet	295 feet	
5	5 425 feet 380 feet		
6	510 feet**	465 feet**	

\*\*For longer trains, add 85 feet for each additional car in train

Fig. 6 Platform lengths. This table has suggested platform lengths for commuter trains with 85-foot cars. If the train is longer than 6 cars, add 85 feet for each car.



Fig. 7 Fence. Span-wire inter-track fence at Harvard, Ill., encourages Metra passengers to use designated crosswalks instead of cutting across the tracks.

Commuter platforms typically have newspaper vending machines and a telephone nearby. Benches and trash cans are common on outside platforms and down the middle of island platforms.

Platform illumination is also important for safety. The two kinds of platform lights are decorative and parkinglot style. Decorative lights are installed on 18- to 20-foot poles and spaced 45 to 50 feet apart. Parking-lot-style lights are typically installed on 25- to 30-foot poles about 100 feet apart. At stations with small ridership, especially in rural locations, the platform lights might be mounted on the depot and there may be few, if any, pole-mounted lights farther down the platform.

Inter-track fence is often installed between tracks to encourage passengers to use designated crosswalks. See fig. 7.

Railroads that operate in snowy climates often build a wider sidewalk or a gravel path to get snow-removal equipment on the platform. Some even have a small, enclosed box behind the platform to store salt for melting ice.

Station signs are found on depots and behind platforms. Advertising signs can also be found on or near station platforms and shelters. These advertising signs generate extra revenue for the commuter agency.

### All aboard!

Whether you model commuter or passenger service, your station scene will look more prototypical with an accurately sized and detailed platforms.

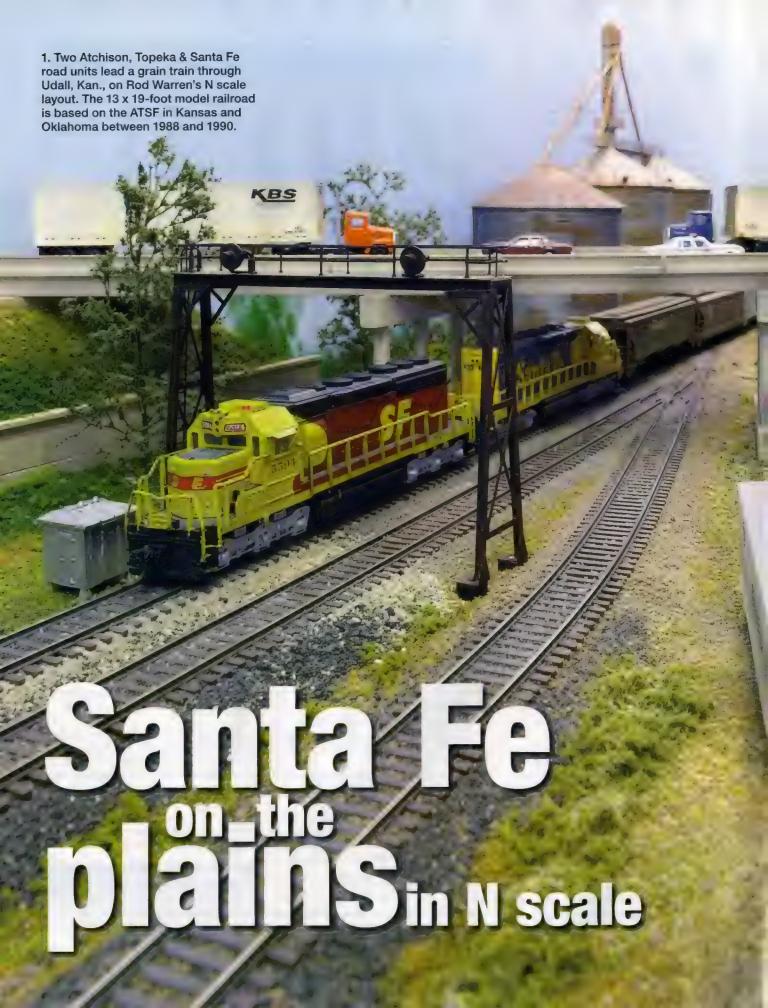
You can still model passenger platforms if your layout is freight only. Many railroads maintain platforms and depots at crew change locations and as offices for maintenance-of-way crews. Other stations are preserved as museums and village halls. In either case, modeling a passenger platform is a fun project that will add realism to your layout.

Andy Roth lives in Belvidere, Ill., and designs stations for Metra, Chicago's metropolitan commuter railroad system. He thanks Frank Hall, Don MacBean, Mike McGinley, Chris Blewett, Jim O'Brien, and Stuart Chuck for their help with this article. The comments in this article are solely those of the author and are neither endorsed nor sponsored by Metra.

### **More on our Web site**

Need more prototype inspiration for your commuter platform? Publisher Terry Thompson photographed Coaster platforms in San Diego. View the images at ModelRailroader.com.









### >> The layout at a glance

Name: Santa Fe Ry. Southern District Scale: N (1:160) Size: 13'-6" x 19'-6"

Prototype: Atchison Topeka &

Santa Fe Ry.

Locale: Kansas and Oklahoma

Period: 1988 to 1990 Style: linear walkaround Mainline run: 107 feet Minimum radius: 16" Minimum turnout: no. 6 Maximum grade: none

Benchwork: L-girder and open-grid

Height: 54" to 551/2"

Roadbed: cork on ½" plywood Track: Micro Engineering code 55

flextrack

Scenery: extruded-foam insulation

board and plaster cloth Backdrop: 1/8" Masonite Control: cab control

in Portland, Ore., in 1994. After seeing these new track components, I dismantled my 10-year-old layout and began work on a new model railroad.

The track plans for my previous layouts were based on articles in the hobby press, and this one is no different. I'd enjoyed reading about David Barrow's HO scale Cat Mountain & Santa Fe and adopted some of his ideas on my Santa Fe Ry. Southern Division. I designed a point-to-point layout that runs along the walls and on one peninsula. Each train begins and ends its run in the visible staging yards at each end of the layout. The six modeled towns have ample industrial switching to keep members of my operating crew busy.

### The layout shed

Before I could start on the layout, I had to finish the 14 x 20-foot shed it's housed in. I constructed new interior walls, the lower half covered with plaster and the upper half with ½8" Masonite. I coved the Masonite to conceal the right-angle corners. I painted the top half of the walls blue and the bottom half black, a trick I learned after studying dioramas at the Australian War Memorial. Painting the lower half of the walls black makes the viewer's eyes focus on the layout, and not the surrounding environment.

Then I turned my attention to the L-girder benchwork. I set the minimum depth for the benchwork at 12", which is easy to reach across. The cab control panels are recessed into the fascia at eight locations on the layout.



This overall view shows how Rod painted the ceiling and valance black so visitors focus their attention on the layout.

### An operating scheme

I selected a version of an old sequence system I'd used back in 1973 for my operating scheme. It involves listing the work each train must make as it moves across the layout. Though my friends have had success with car cards and waybills, that wouldn't work on my layout because the aisles are too narrow for each operator to follow his train.

Next to the control panel at each yard and town is a small clipboard that holds the schedule of train movements for that location. There are three columns on the schedule. The left column lists all of the train movements at that town by train number (the lead locomotive

number is used as the train number).

The middle column outlines the duties to be performed, such as picking up or setting out cars. Each car is listed by reporting mark and road number. The right column tells the operator which direction and town the train arrives from (or moves toward) next. We use paper clips to highlight the train number.

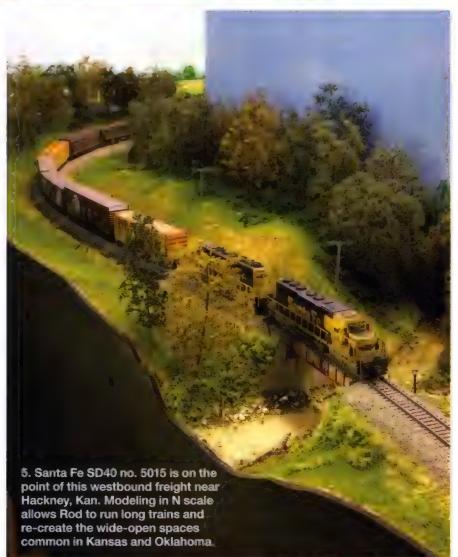
I've also developed a crew roster so each operator works a different job each time. Instead of being assigned to a certain train, my operators are assigned to a specific location. It takes eight sessions before an operator repeats a job.

Through freights, locals, and light engine moves all occur during an operating session. Locomotives are also cut from arriving trains and sent to the engine terminal before their next assignment.

We've had success with this system for the past five years. Thanks to a great operating crew, the new schedule has made the railroad more rewarding. – R.W.







4. As the local waits in the hole, a westbound freight led by Santa Fe SD40-2 no. 5192 rolls through Winfield, Kan. The lead units on both trains are painted in the "Kodachrome" scheme for the proposed 1983 merger between Santa Fe and Southern Pacific. The merger was denied by the Interstate Commerce Commission.

I next installed valances, which follow the layout's footprint. I painted the exterior flat black and the interior with the same blue I used on the backdrop. I also painted the ceiling above the aisle flat black so it would blend in with the valances. [See photo 3 on the previous page. – *Ed.*] The layout is illuminated with fluorescent lights.

### Realistic right of way

My goal was to emphasize the main line as much as possible. To do this, I laid the mainline track on two layers of ½" cork. I cut the bottom layer 14 scale feet wide, split it down the middle, and attached it with clear silicone adhesive on each side of the track centerline that I had marked on the subroadbed. Then I cut the top layer a scale 9 feet wide and used the silicone to cement it to the cork below.

I used the same techniques, but thinner cork, for the passing sidings, yielding a realistic height variation between the main and secondary tracks. The difference between the main and industrial sidings is even more pronounced, as I used only one layer of 1/8" cork.

Next came the fun part, installing track. I used Micro Engineering's code

55 weathered flextrack. I secured the track to the cork roadbed with the same clear silicone adhesive, which I applied evenly but sparingly so it wouldn't ooze up between the ties.

As I installed the flextrack, I was surprised at how much stiffer it was than the Peco track I'd grown accustomed to. I used a yardstick to align straight sections of track and double checked the alignment by eye.

The only difficulty I had with Micro Engineering's weathered flextrack was soldering feeder wires to the rails. I tried unsuccessfully to attach the wires with rosin-core solder. Then my friend suggested that I use green label Carr's flux from England. With some careful cleaning of the rails beforehand, this product made soldering feeders easy.

I finished the track with Highball Products ballast. I used different colors as appropriate for the main line, passing sidings, and industrial tracks. Not only does this match prototype practice, but it further reinforces the height difference between the tracks.

### Santa Fe on the plains

I cut and shaped extruded-foam insulation board to model the low-rolling hills of Kansas and Oklahoma. After I shaped the foam, I covered it with plaster gauze, which provided a good base for the scenery. To prevent the white plaster from showing through the scenery, I applied various brown washes. Then I brushed the hills with diluted white glue and applied Carr's Scenic Scatter, a line of ground foam from England. The firm offers the foam in a variety of colors, which I blended together to simulate the vegetation of the plains. I added small patches of static grass along the railroad right-of-way to suggest weeds and overgrowth.

I planted trees sparingly on the layout. After all, this is the plains. I used Super Tree kits from Scenic Express, which I like for their open branch structure. Visitors often comment on the realism of the trees.

My friend Vic Fitzpatrick built the railroad bridges using Micro Engineering kits. He also designed and assembled the etched-brass Santa Fe-style signals. The railroad-specific signals provide the degree of realism I was looking for on this layout.

To avoid having the same structures as everyone else, I scratchbuilt and kit-bashed most of the buildings on the railroad. Though I didn't work from prototype plans, I think the structures capture the feel of the Plains, especially the towering grain elevator complexes that dwarf the covered hoppers.



6. The Ponca City Local has just completed its switching duties in Hackney, but the train will need to wait for the signal department to finish up its work before departing. Rod's friend Vic Fitzpatrick designed and assembled the signal.

### The direct (current) route

Though many members of my operating crew have made the switch to Digital Command Control, I've decided to stay with my tried and true cab control system. It works well, and the thought of adding decoders to more than 30 engines (plus rewiring the layout) isn't one I care to contemplate.

Two of my friends built the throttles, which are small rectangular plastic boxes with a direction switch and throttle knob. They're electrically connected to the layout with a flexible tethered cable. The throttles attach to the fascia with hook-and-loop fasteners.

There are two throttles at Augusta, Udall, and Flynn, and one each at the other locations. In towns where there are two throttles, the right one controls the local tracks and one block on either side. The left throttles at Augusta and Udall control all of the track to as far as midway between Hackney and Ponca City. The throttle at Flynn controls the track back to the same midpoint.

### Upgrades and the future

To ensure future reliability, I modified the turnouts by replacing the stock switch rod with a printed-circuit board. I've also replaced some of the point rails, powered the frogs, and installed Tortoise switch motors. All of these changes have made a significant improvement to the overall operation of the model railroad.

I'm also adding scenery and structures to the Augusta Yard. In addition to ballasting the track and adding a highway overpass, I'm working on a new engine terminal.

This year marks the 14th anniversary of the Santa Fe Ry. Southern Division, and the layout has helped me enjoy the hobby even more than I could have imagined. Now how about running some trains through the plains of Kansas and Oklahoma? MR

### Meet Rod Warren

Rod and his wife, Helen, live in Wantima, Victoria, Australia. They have three children and two grandchildren. Rod got started in model railroading in 1969 when his wife bought him an HO scale train set. Since then he has built five layouts in both HO and N. He is a founding member and past secretary and president of

the MelbNTrak
Model Railroad
Club (www.
melbntrak.com).
Rod also served
on the organizing
committee for
national N scale
conventions
in Australia.



# Making realistic tunnel linings

An easy technique to simulate tunnels bored through solid rock

By Rowland Foster • Photos by the author



Modeling the interior behind the portal makes it look like this tunnel passes through a solid mountain on Rowdy Foster's HO scale Great Northern layout.

unnels are one of the most popular methods modelers employ to conceal tracks. They're especially useful when it comes to hiding a track that passes in close proximity to another main line that's supposed to be miles away. Realistic portals are readily available, but many modelers omit the interior lining when they build a tunnel. Without a lining viewers see into the hollow core of the mountain, which destroys the illusion of a tunnel bored through solid rock.

As my layout's scenery began to take shape, I realized that I would need five double-track tunnels to get my main line through the mountains. After looking at the available products, I decided to use commercial portals and make my own tunnel linings.

The homemade tunnel form I came up with can be used over and over to produce linings of any length, and the lining can be trimmed into sections that will also work on curves.

Though my project was done for a double-track situation, the same techniques will work for single track and other scales. However, I suggest you use standard-size portals from a single supplier, as the tunnel form requires uniform-size portal openings.

In the following steps, I'll show you how to make realistic tunnel liners that will stand close-up viewing.

Rowland (Rowdy) Foster is building an HO double-deck Great Northern RR depicting the line that crossed the Rocky Mountains in northwest Montana during the 1930s. He and his wife, Peggy, live near Minneapolis, and enjoy traveling, camping, hiking, and spending time with their four grandchildren.



I began by cutting an inside portal out of 1" pine to reinforce the cast plaster portals. I made the opening in my wooden portals at least 1/6" larger all the way around than the opening in the plaster portals. I made sure the bottom footings were even. I used white glue to attach the wood portals to the back of each plaster portal, and allowed these assemblies to dry overnight. Later on, the metal duct will fit into the inset behind each portal.



I cut a pine baseboard the length of the tunnel, and added four wooden arch-shaped supports that matched the portal openings. I positioned one support at each end with the others evenly spaced in the middle. I secured each support with a pair of 11/4" flathead wood screws driven up from below. The finished baseboard should have a snug friction fit inside the plaster portals without requiring undue force that may crack the plaster.

### Step 3: Fit the metal duct



I used tin snips to trim a piece of aluminum duct to fit over the base and into the wooden portals. Then I attached the duct to the sides of the base with no. 8 x ¾" round head wood screws. I found that slight crinkles in the metal duct weren't a concern, but I had to be careful handling the mold, as it's easy to dislodge and damage the portals.

### Step 4: Apply the aluminum foil



I crumpled up a sheet of heavy aluminum foil, flattened it out, and wrapped it over the duct with the lower edges folded under. I didn't fasten the foil to the base. This rough layer of foil produces the rock texture on the inside of the liner. Then I coated the foil with Pam non-stick cooking spray to keep the plaster from sticking to the aluminum.

### Step 5: Apply the plaster



Next, I mixed and applied the plaster one cup at a time. If the form is more than 9" long, it'll need double batches. I tipped the form on its side and applied the wet plaster to one side, smoothing it with wet rubber gloves. After the plaster set and cooled, I wet the hardened edge before covering the top of the form with another batch of plaster. After smoothing it out, I let it harden. Finally, I tipped the form over for the final plaster application.

I cut some paper towels into inch-wide strips, dipped them into soupy plaster, and applied several layers of reinforcing strips along the back of the portal edges.

### Step 6: Finishing the casting



Separating the cast lining from the form takes a bit of care. I use a small hammer to very gently tap the inside edges of each wood portal until the portal assembly came free. I lifted the main casting off the form and removed the foil. After making sure the interior was dry, I applied a coat of clear matte medium to seal the plaster. When the seam was dry, I sprayed the liner with a medium gray to simulate the color of blasted rock. I used a layer of plaster to fill the gap around the inside of the wooden portal and finished the two portals with a coat of Polly Scale Concrete and weathering.

### Materials List

Aluminum duct, 4" x 24"
Clear matte medium
Heavy-duty aluminum foil
Molding plaster
No. 8 x 3/4" round head wood screws
No. 8 x 11/4" flat head wood screws
1/4" x 24" wood dowel
1 x 6 pine board, 48"
Non-stick cooking spray
Testor's no. 1260 Dullcote spray
Testor's no. 1238 Gray spray
Thick paper towels

Tunnel portals (cast plaster)

### 5 tips on mixing plaster

- **1.** Follow the manufacturer's mixing instructions, especially the ratio of molding plaster to water. Additional water only weakens the plaster and warm water will make it set faster.
- 2. Dry plaster that's lumpy or coarse has absorbed too much moisture from the air and will be weak. Fresh plaster has a fine, powdery appearance.
- **3.** I use a plastic bowl to mix my batches of plaster, and use a second bowl filled with water to wash off my tools and rubber gloves.
- **4.** Always add plaster to the water. Stir with a rubber spatula as the mixture thickens until you get a uniform consistency.
- **5.** Once molding plaster sets (15 to 20 minutes), it can't be softened with additional water. However, the crushed scraps make excellent rubble or talus on a mountain layout. *R.F.*

# TRACK PLAN for an HO SHELF LAYOUT

Notes on designing and building a friendly and compact HO switching layout By Detlef Kurpanek • Photos by the author family move caused the demise of my HO scale 9 x 30-foot Great Northwestern RR, and I realized that time was now going to be at a premium. Home schooling six youngsters, family activities, and working weren't going to leave much time for rebuilding the railroad. I began looking through my back issues of Model Rail-

Staging

-Interchange

trigued by compact switching layouts. A switching layout focuses on local or way freight operations. Some continuous running can be included, and the layout can even be planned as part of a future expansion, but the core concept features handling small cuts of cars that must be delivered or picked up at on-line industries.

roader and its special track-planning

issues for inspiration and became in-

It's an interesting concept, and the layout doesn't have to be large, yet there can be a lot of operation available.

### **Great Northwestern's Warm Springs District**

"Givens and druthers"

I've always followed the late John Armstrong's track-planning methods, so my first planning step was to make up a list of desirable features that he called "givens and druthers."

 The layout needed to be arranged for at least two operators. Operating with others is fun, and at a minimum, I wanted a couple of operators to be able to work together on the railroad.

· I wanted at least one good-sized runaround track, preferably one for each operator. However, a shared runaround track was acceptable.

· Most of the turnout actuators should be placed as close as possible to the front of the layout. I wanted to use manual ground throws to simplify construction and reduce the costs. Mounting them along the front of the layout reduced the need for operators to reach over the scenery.

· I chose to use narrow benchwork to provide easy access to all parts of



54

Coal in-

Ash out

 I wanted to avoid switching puzzles, although I used a mixture of facingand trailing-point spurs.

· Even though industrial areas are often packed with track, I wanted space for reasonable scenes that incorporate a number of scenic elements such as a major street underpass, a downtown commercial business area, and a creek and bridge scene.

• My preference was a 1970s setting (when I grew up) with standard gauge in a metropolitan industrial area. This allows me to use 60- and 70-foot cars and diesel locomotives.

• I wanted a reasonably large engine terminal and freight yard.

· Since I grew up in the San Francisco bay area and love watching the commuter trains, a passenger station was mandatory.

• I wanted to include an accessible staging yard to handle traffic moving on and off my railroad.

• Finally, I wanted an expandable design in case more time and resources eventually become available.

Everything had to fit along a 20-foot basement wall in a space about 30" inches deep. From the corner, an adjacent wall extended another 8 feet with room for a 24" wide shelf that would hold a narrow staging yard.

### The main line

My track plan features a main line that runs through an industrial area and includes several related scenes. The layout is divided into districts that are switched by different yard jobs.

Most of the main line doesn't run parallel to the front of the layout, giving the right-of-way interest as it passes through the scene. What begins as a single-track main line splits into doubletrack as it enters the city. Functionally, this provides a pair of switch leads for the two operators.

The front track is the main yard lead, while the second one provides



access to most of the industries and the passenger tracks. On the right end of the layout, the back main becomes the arrival/departure track, while the front main leads into the vard. In the future. the back main could extend to an addition to the layout. The main line includes a couple of crossovers that create a lap siding, allowing for engine run-around movements.

The yard area

The yard is on the right side of the layout. It features three classification tracks, a two-track engine terminal and a RIP (repair-in-place) track. All the yard turnouts are adjacent to the layout's edge, allowing for easy turnout operation. The yard crew uses the front main as a switch lead, and the lead is

switcher transfers a cut of interchange cars into the Warm Springs yard on Detlef Kurpanek's HO scale switching railroad. Slow trains, cross-town transfer runs, and plenty of industrial switching keep this compact railroad's two-man operating crew busy.

### The track plan at a glance

Name: Great Northwestern Ry. Warm Springs District

Scale: HO (1:87.1) Size: 2'-6" x 20'-0" long

with a 2'-0" x 8'-0" staging yard

Theme: Regional feeder line Locale: Colorado

Era: 1976-1980

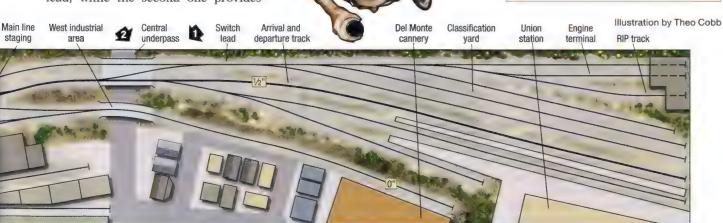
Style: L-shaped shelf layout

Mainline run: 28 feet

Minimum radii: 30" (main line), 24" (yards and branches)

Minimum turnouts: no. 6 (main line),

no. 4 (industrial tracks) Maximum grade: 2 percent





Short, frequent commuter trains made up of Southern Pacific galley cars add variety to the daily operations in the Warm Springs District. The large brick and concrete building behind the train is the Del Monte cannery.

long enough to pull a cut of cars out of the longest track and not foul the back main. The engine terminal and RIP track provide three tracks to store locomotives and specialty cars.

### The passenger terminal

I included a small two-track passenger station at one end of the layout and use it as a commuter terminal. (The station's second track also serves as an additional arrival and departure track for the yard.) I've also included a small commuter station at the opposite end of the layout. During a session, I run several commuter trains, consisting of two bi-level cars pulled by older Southern Pacific Geeps.

I had originally planned to include an escape track between the first yard track and the main, but it reduced the usable length of the yard tracks. Instead, I decided that it's the yard crew's job to pull the arriving train's cars off the locomotive before it can head over to the engine terminal.

### West industrial area

A cannery and a machine shop make up the west industrial area. It's located behind the main line, with a few spurs that are served by a local switch job. This area can be worked independently of the yard.

One long spur serves the large Del Monte cannery. It gives a feel of being a separate branch by dropping ½" in elevation as it runs along the city scene. It is the perfect destination for short cuts of Pacific Fruit Express reefers.

A machine shop at the other end of this track is served by a pair of spurs facing the opposite direction. This shop receives flatcars of heavy equipment inside the building and boxcars along the loading docks.

The area's major scenic feature is an underpass in the center of the layout. I put the two mains and the cannery spur on their own bridges over the street to further emphasize the separation of these areas. The double-track bridge includes a cross-over, but to simplify construction the points and the ground throws aren't on the bridge.

### East industrial area

As the main line heads toward the staging yard, it swings near the back of the layout on a gentle curve. A spur off of the main line here serves the east industrial area. These businesses are represented by partial structures and background flats, and include several small warehouses.

The east industrial area also has a power plant, nestled into the corner by the staging yard. The power plant has a pair of spurs. Hoppers loaded with coal are delivered to the front track, while covered hoppers (to carry out the ash) and occasional flats with heavy equipment, are spotted on the back track.

### The industrial branch and staging

My third switching area, the industrial branch, passes along the front of the railroad. It serves oil, concrete, and propane wholesalers, and because it's more visible than the other two industrial areas, I've included more detail.

The branch is served from the back main track, but I placed a single-slip switch at the entrance to allow the industrial switcher to use part of the front main as a runaround track. The branch continues into staging, and though it's two staging tracks are adjacent to the main staging yard, I use them as an interchange yard with another railroad.

With this much railroading packed into 70 square feet, some staging is a must to handle and store cars moving on and off the railroad. The main line splits into four staging tracks that run parallel to the wall. Of course, if you have the room, you could expand the layout beyond staging.

### Lessons learned

Though it's presented here as a track plan, I've actually built most of the railroad. Along the way, I've learned a few lessons. First, the manual turnouts near the back of the layout proved to be difficult to operate. I also found that I use the staging yard a lot more than I'd originally planned, so to make things easier, I'm installing switch motors on all those turnouts.

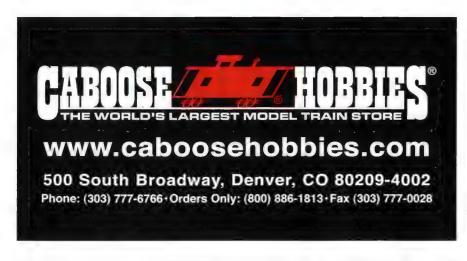
Second, as the scenery construction and initial operating stages began, I realized that the layout's 30" depth is a stretch to reach across. Also, switching behind tall buildings turned simple moves into real challenges.

Still, I like the scenic opportunities extra depth provided, and I found that working on a low stool made construction of the hard-to-reach places much easier. I was able to minimize the operating problems by using short buildings on the front of the layout.

Finally, something that I didn't expect at all was the fun I've had detailing the railroad. My previous layout never got much beyond basic scenery, but everything on this layout is viewed close up, so I've been finishing each scene with more detail. The railroad represents about 35 acres of land in an urban industrial area, so there's plenty of room for all sorts of fine modeling. And I find that doing switching work on a well detailed railroad is inspiring.

I've chronicled some of the development of the Great Northwestern at www.trainweb.org/gnw/. Overall, I'm thrilled with how my plan turned out. The layout has been straightforward to build, fun to operate, and it includes most of my 'givens and druthers.' MR

Detlef Kurpanek is a consultant in the energy industry. He started model railroading at age 8, and this is the fifth version of the GNW. Detlef and his wife Nancy have been married for 23 years and live in Aurora, Colo., with their six children. The family enjoys church mission trips, working on home projects, and exploring the Rocky Mountains.



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# Add window tinting to your locomotives







ready-to-run locomotive models, such as this HO scale Athearn Dash 9-44CW, is impressive. To further improve the model, Erik Bergstrom adds window tinting to hide unrealistic wires routing

A quick technique to improve the appearance of ready-to-run locomotives

By Erik Bergstrom • Photos by the author

t's much easier for hobbyists today to find highly detailed locomotives and rolling stock at a modest price than in decades past. My recent acquisition of a ready-to-run diesel locomotive got me thinking about how much time I used to spend installing details. Grab irons and other parts I used to add myself are now factory-installed on many models.

I'm pleased with the level of detail on my new HO scale (1:87.1) Athearn Ready-to-Roll Dash 9-44CW locomotive, but I did observe one missing feature – the locomotive's side windows aren't tinted. Tinted windows on a contemporary model not only give the locomotive a prototypical appearance, they also hide the headlight wires that are often visible through transparent window inserts.

I began considering ways to remedy this omission. I could remove the window inserts from the cab's interior and paint the inside of the clear plastic with black paint, preferably with an airbrush to achieve a smooth, consistent finish. By applying paint to the inside of the windows, they retain their reflective quality on the outside. However, this would require removing the windows from the cab.

Instead, I decided to use a real-world solution to resolve my model dilemma. Window tint film might be meant for use on automobiles, but there's no reason why it couldn't be used on model locomotives. Tint film is easy to work with and is available at most automotive parts stores in rolls measuring 24" wide by 6½-feet long. This lifetime supply of locomotive window tint film sells for little more than \$10.

The level of detail included on many

through the cab.

On the opposite page, I describe the quick process I use to add the film to the inside of locomotive windows – all without having to remove the windows from the cab.

Erik Bergstrom is the former Internet Publishing Manager at Kalmbach Publishing Co. He's an accomplished modeler who enjoys building contemporary HO scale diesel locomotives.

### Remove the shell

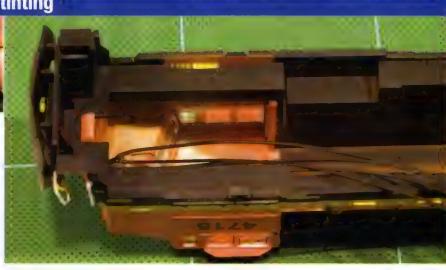
Begin by preparing a smooth work surface clear of any debris that might mar the exterior of your locomotive. Carefully place the locomotive upside down on the workspace and remove the screws from each coupler assembly. Next, pull the assembly from the coupler pocket and set it aside. Turn the locomotive right side up and slowly lift the shell off the chassis. Be careful here – the thin wires running from the circuit board to the headlights are tethered to the shell.



### Measure and cut window tinting



With the interior of the shell exposed, use a small rule to measure the width of the side windows. The three windows on one side of my model have a combined width of 7/8". Since the tint film can extend above and below the window openings, I cut my piece of film 7/8" wide and between 3/4" and 1" deep using a hobby knife with a fresh blade and a straightedge.



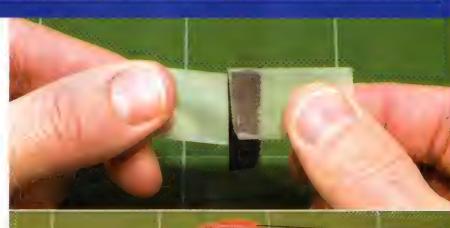
### **Install the tinting**

To install the tint film to the inside of the windows, you must separate the film from the liner that covers the self-adhesive side. First, apply a piece of transparent cellophane tape to each side of the film, with one extending from the left side and the other extending from the right. Gently pull the two pieces of tape in opposite directions and the film will separate from the liner.

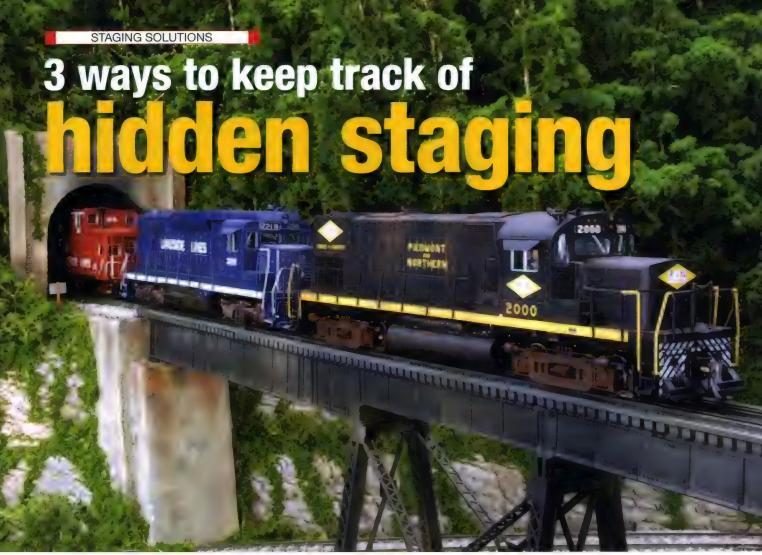
Keep the tape attached to the film and use it to help position the film on the inside of the cab window. Once you're satisfied with the position, use a cotton swab to press the film in place over the cab windows.

For an alternative way to get the tint film into position, try placing the film along the top edge of the window assembly and then roll it into place, downward toward the window bottom. Once the film is in place, remove the cellophane tape from the back of the film.

Repeat these steps for the opposite side and 1/8" wide rear-facing windows, then reattach the shell to the chassis. MR







A train emerges from hidden staging via Bluff Tunnel on Tom Harris' HO scale Lakeside Lines layout. Tom uses security cameras, DCC-controlled switch motors, and a magnetic status board to manage trains in staging.

Remote monitor, status board, and DCC keep you in control beyond that tunnel portal

### By Tom Harris

Photos by the author

taging yards are critical to realistic model railroad operations, as they represent the entire rail network beyond the modeled layout. But when the caboose of your train disappears from sight as it enters a hidden staging yard, you can't help but get that old nervous feeling in the pit of your stomach.

My HO scale Lakeside Lines has two big double-ended hidden staging yards, each of which has 12 storage tracks 45

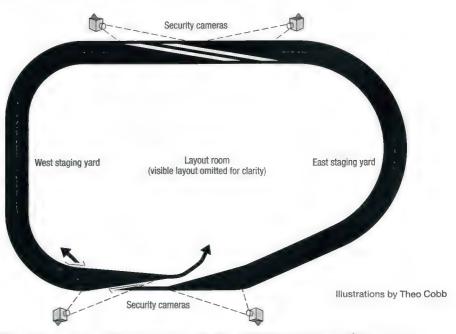


Fig. 1: Camera positioning. Tom positioned micro-board security cameras above the entrances and exits of his two hidden staging yards.



Fig. 2 Tiny camera. A pencil provides a comparison to show the size of a micro-board camera. Tom uses cameras like these to monitor trains in his hidden staging yards.

feet or more in length. They're great for storing the long trains I favor, but they require a well-thought-out management system. Operators need to know if their trains are moving and how fast, whether they're safely tucked in their staging tracks or fouling switches, and what trains are on which tracks. They also need to be able to operate 48 turnouts without being able to see them.

I've met the challenge of operating my staging yards with a three-part system. First, I mounted video cameras above my staging yards so operators can follow their trains' progress on a monitor in the layout room. Digital Command Control accessory decoders operate the hidden switches, automatically aligning routes in and out of specific storage tracks. Finally, a magnetic train status board keeps operators informed of the locations of trains and locomotives, as well as their numbers.

### Smile for the camera

Engineers feel more confident operating their trains when they can actually see them. In hidden staging, video cameras make this possible. The Lakeside Lines staging yards are too large to view in their entirety, but four cameras positioned to show the throats at each end of the two yards suffice. Figure 1 shows where these cameras are located. The cameras show if the trains in staging are moving or not and allow operators to move trains without leaving any fouled turnouts.

Putting in a video system is cheaper and easier than you might think. Miniature security cameras are ideal for model railroad purposes. I bought mine from Security Cameras Direct (www.scdlink.com) after my wife brought one of their catalogs home from work, but searching for the words "security cameras" on Google will turn up a wealth of suppliers.

There is a large variety of cameras available, at a wide range of prices. For our purposes, you don't need the expensive ones with vandal- and weather-proof enclosures. I bought four micro-



Fig. 3 Split screen. A single video monitor in Tom's layout room displays the yard ladders in his hidden staging areas. Though having the four video feeds displayed on one monitor means the images aren't very detailed, they're big enough to show the movement of trains in staging.



Fig. 4 Bird's-eye view. A view from camera 1 shows the entrance of one of Tom's staging yards. At bottom right are several of the stationary Digital Command Control decoders he uses to control switch motors.

board cameras, like the one shown in fig. 2, which have the video camera and electronics on a circuit board about 2" square. My color cameras cost \$70 each. Black-and-white ones cost even less. You can spend more or less than I did, depending on the camera's resolution.

You will also need a processor to manage the inputs from multiple camera feeds and produce a single feed for your monitor. These can work with four to eight cameras each. You can set them up to select the view from a particular camera, rotate between the cameras, or show multiple views all at once on a divided screen. I use the split screen to show all four views at once, as you can see in fig. 3.

You may not need to buy a video monitor if you have an old TV set or computer monitor. I used a 17" screen I already had in my layout room. You'll also need the cables to connect it all, some of which may be supplied with the cameras and processor.

### Lights, camera, power

The cameras I purchased work well in low light, like that in my staging area (and in most staging situations I've seen). You can also get infrared cameras, which will produce a picture even if there is no light.

When I picked my cameras, I looked for the widest possible field of view, which allows me to see more of the yard throats. The wide-angle lenses distort the view, making straight lines seem curved near the image's edge, but for this purpose, that's of no concern.

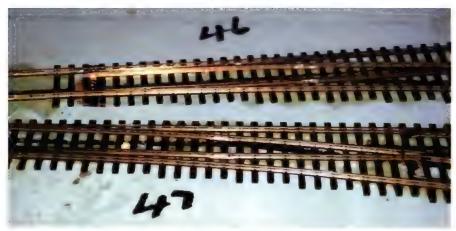


Fig. 5 Turnout numbers. Tom numbered all the turnouts in his staging yards from 1 to 48 and used those numbers as the addresses for the stationary DCC decoders that control the switch motors.

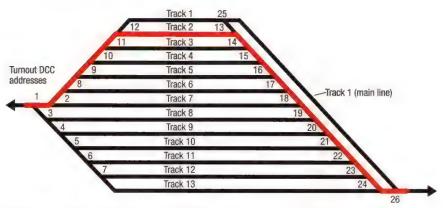


Fig. 7: Sample routing for track 2. Some routes through Tom's staging yards require lining more turnouts than the 10 handled by most DCC system macros.

Power needs of the cameras vary by model. The most common power inputs are 24 volts (V) AC or 9-12V DC. My cameras use the latter, saving me the expense of purchasing an AC power source. They are powered by plug-in block transformers, rated at 300 milliamps; one such transformer is sufficient to power two cameras. When I first connected the cameras, I set the power supplies at 12V. I soon noticed that although the cameras were working fine, they were running hot; in fact, I could hardly touch them. When I discovered this I switched the power supplies to 9V. The cameras still worked well, but barely got warm.

Micro-board video cameras are so small and light that they're a breeze to mount. I noted the mounting holes at the corners of the PC boards and determined I could attach the cameras to the floor joists running along my basement ceiling. **Figure 4**, shot with a digital camera, shows the angle of view of camera 1. For testing, I affixed them with pushpins, which worked so well that I just left them that way.

### **Automating switch operation**

On a railroad that uses DCC, like my Lakeside Lines, there are simple solutions that let you remotely align entire routes at once. I equipped all of my turnouts with Tortoise motors, though any switch motor or machine would work. I gave each turnout a unique DCC accessory address, physically writing this number beside each switch motor with a black felt-tip marker, as in fig. 5. Most DCC systems allow accessory addresses from 1 to 2,048, so I simply numbered my first turnout 1 and kept going to 48.

Next, I installed Digitrax DS64 stationary decoders, like the one in **fig. 6**, to run the switch motors in the staging area. One reason I chose the DS64 is that it can use an auxiliary power source to operate the turnouts, and I wanted all my DCC track bus power available for running trains. Not only can each decoder operate four switch motors independently, but they can also be programmed so that the position of one of the motors can affect the position of the remaining three.



Fig. 6 Turnout control. Tom uses Digitrax DS64 stationary DCC decoders to control the switch motors in his staging yards. Each can control four devices. He labels each port with the number of the turnout it controls. The decoder's macro function lets him line multiple turnouts once.

### **Programming macros**

The final step in automating my staging switches was to write macros to operate a sequence of turnouts in response to a single command. A macro is a list of accessory-decoder addresses, along with instructions to open or close each listed accessory when the macro number is executed. Most full-featured DCC systems let you build macros of up to 10 commands, which can operate 10 different accessories at once. This is sufficient to handle routings for most staging yards. Using track numbers for the macro addresses makes them easy to remember.

In most DCC systems, macros can be programmed by opening the macro programming screen (see the instructions for your particular system), typing in the macro number, then entering a list of accessory addresses and their desired positions when the macro is executed. Once this is done, you simply push the macro button on your DCC controller, followed by the track number, and the entire route will be automatically aligned.

Unfortunately, my two staging yards have so many turnouts that aligning 10 at once was often not enough. Figure 7 shows the simplified track arrangement for my West Staging Yard, along with the path that would be followed by a train being routed through track 2. Opening this route requires aligning 20 turnouts!

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I've reduced the number of commands needed to accomplish routing by using the cascade programming capabilities of the DS64 decoders. Since turnouts 9 through 12 are controlled by the same decoder, I can program it so that opening switch 12 makes switches 11, 10 and 9 automatically close; this saves me three steps. It's the same with turnouts 1, 2, 3, and 8; turnouts 13, 14, 15, and 25; turnouts 16 through 19; and turnouts 20 through 23. Each group is programmed to cascade when the top address is opened. This allows me to route for track 2 by writing a macro using only six commands.

### **Train status board**

The final step in simplifying staging yard operations isn't nearly as hightech as the previous two, but every bit as vital. How do I know which trains are in my staging yards, and which tracks they're on? This is where my train-status board comes into play.

I made my status board from a white magnetic bulletin board I bought at Walmart, though they're also available at office-supply stores. Using ½" wide black tape, I applied stripes to divide the board into columns. There are separate sections for eastbound and westbound trains. See fig. 9. After marking the rows and columns with the tape, I sealed the board with a spray clear coat. After the board dried, I hung it in a visible location in my layout room.

No lettering is permanently applied to the status board; all of the writing is printed on magnetic-backed labels available at office supply and discount stores. I printed out my track numbers, EASTBOUND and WESTBOUND column headings, and the names and numbers of each of the trains I planned to operate on the layout. I then cut the sheet into individual magnets. The train magnets are placed on the board in the space corresponding to the staging track in which the train is stored, as seen in fig. 10. The labels for trains not in staging are stored on the front of a small refrigerator, handily located under the layout beside the status board.

I also made magnetic labels for each locomotive on the layout. These labels are posted on the board to the right of the label for their train. If a train has been assigned multiple locomotives, I stack the locomotive magnets on top of each other, with the lead locomotive's magnet on top.

I've added locomotives since I made my first batch of magnets. I make magnets for new locomotives with a Dymo label maker, available at office supply stores. It prints labels on a variety of

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THACK 28			tell though providing a substituted burnels	Laborate 6 mon 1,0%	

Fig. 9 Status board. A magnetic bulletin board lets operators on Tom's layout quickly see which trains are on which staging tracks. The bottom of the board is empty because tracks 14 to 25 are still under construction.



Fig. 10 All a-board. Train descriptions, locomotive numbers, and track numbers are printed on magnetic labels and placed on the train status board. When a train leaves staging, its label is moved to a refrigerator under the layout.

materials, unlike the old models that punched letters into sticky plastic tape. Many kinds of labels are available, including magnetic ones.

### Using the system

Suppose I have a guest viewing the railroad, and I decide to demonstrate the operation of a long train of loaded coal hoppers that happens to be in staging. Nothing could be easier. I consult the train status board and see that the train is on track 7. I enter macro 7 into my DCC throttle, lining the staging turnouts for that track. Since the board shows the train has locomotive no. 4255 in the lead, I enter its address,

4255, on my DCC throttle. I open the throttle until I see the train begin to move on the video monitor, then adjust its speed. Thanks to the cameras, I'm confident all is well until the train appears on the layout.

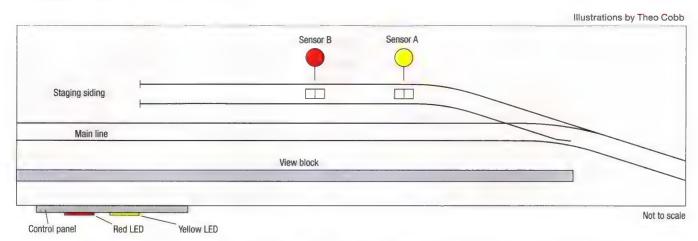
Once the train completes its tour of the railroad, I use the video system to safely tuck it back into the appropriate staging track. Aren't these modern gadgets amazing? MR

Lifelong model railroader Tom Harris lives with his wife, Karen, in Wytheville, Va. His home was designed to fit the track plan for his HO scale Lakeside Lines layout.

# Simple train detection for staging tracks

Spot trains on hidden tracks with infrared sensors and LEDs

By Robert Frey • Photos by the author



Hidden staging tracks are a great way to depict "the rest of the world" on a model railroad, as long as you know where your trains are when they're sight unseen. Follow

Robert Frey as he shows you how he uses infrared sensors to move trains into and out of staging without having to peer over a view block.

use hidden sidings to stage trains on my layout. As with any track that's hidden from an operator's view, there must be a way for the operator to know when his train has cleared an unseen turnout or reached the end of a staging spur. I've designed a simple circuit that uses infrared sensors and light-emitting diodes (LEDs) so that I know when a train has cleared the main line and reached the end of a staging track.

As you can see in **fig. 1**, when a train enters the siding, the yellow LED on the control panel lights up first, followed by the red LED. When the yellow LED goes off, the train has cleared the turnout and should be stopped. The red LED stays on to indicate that the siding is occupied. If the red LED turns off while the yellow LED is off, then



Fig. 1 How the detector works. When a train enters the staging siding and passes over sensor A, the yellow LED turns on. As the train continues over sensor B, the red LED turns on. When the yellow LED turns off the operator knows he's cleared the mainline turnout and can stop his train.

the train has gone too far and is in danger of running off the siding.

### **Building the circuit**

I use two infrared reflective object sensors. As shown in **fig. 2**, one sensor

is connected to the yellow LED and the other to the red LED. Each sensor consists of an infrared-emitting diode (E) mounted next to a phototransistor (S). When a 20mA current passes through the diode and an object passes .15" or

### Materials List

Digi-Key Corp. www.digikey.com

1.00KXBK-ND 1KΩ resistor (2)
511-1228-ND 2mm x 3.1mm
red diffused LED
511-1230-ND 2mm x 3.1mm yellow
diffused LED
MPSA27GOS-ND High-gain NPN
Darlington transistors (2)
P470KCACT-ND 470KΩ resistor (2)
QRB1114-ND Infrared

emitter/sensor (2) RNF1/4T1470FRCT-ND 470Ω

Electronix Express www.elexp.com 03013399 1/16" thick perfboard

### Miscellaneous

resistor

3/4" x 11/2" x 11/2" wood block .25" wood dowel Four-wire telephone cable Heat shrink tubing

less above the sensor, the phototransistor passes a 1mA current.

To amplify this current, I use two high-gain transistors. With them, the sensors can detect a surface ½" to ¾" away, and each transistor amplifies the current to 8mA, which easily powers an LED. The red LED's current flows through both emitters for a quicker red "on" and yellow "off" response.

I ordered the sensors, resistors, and transistors for the project from Digi-Key (www.digikey.com).

I built the circuit on ½16" thick phenolic perfboard without solder pads. This board has .045"-diameter holes on .1" centers, and I used a 5-hole x 8-hole piece of the board.

I installed the components on the board according to the diagram shown in fig. 2. You can see the finished LED board in fig. 3. I used a four-wire telephone cable to connect the sensors. I bent the ends of the resistor wires into small circles so that I could more easily solder wires to them.

At the other end of the cable I connected the two sensors following the diagram in **fig. 2**. As shown in **fig. 4**, I used heat-shrink tubing around the connections to avoid a short circuit.

### Installing the sensors

I installed the sensors before laying track for the hidden siding. After drawing a centerline on the roadbed of the siding, I drilled two 1/4"-diameter holes through the roadbed and subroadbed.

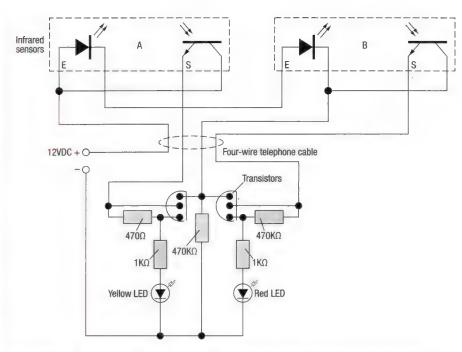


Fig. 2 Wiring diagram. Robert connected the components as shown in the diagram. The transistors amplify the infrared beam emitted from each sensor. With the amplified signal, the sensors can detect an object 1/2" to 3/4" away.

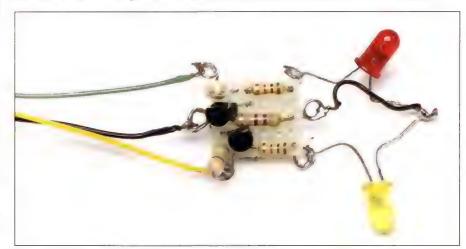


Fig. 3 LED board. The LEDs, resistors, and transistors are mounted on perfboard. Robert bends the wires at the ends of the resistors into small circles to make soldering connections easier.

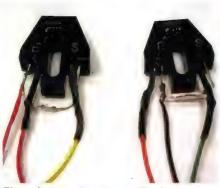


Fig. 4 Infrared sensors. Each sensor consists of an infrared emitter (E) and a phototransistor (S). The shrink tubing around the wiring connections helps avoid short circuits.



Fig. 5 Installing the sensors. Robert drilled two ¼" holes through the roadbed and subroadbed. He'll finish the openings using the wood drilling block at the upper right.





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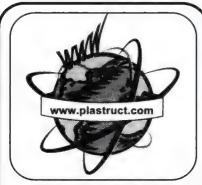
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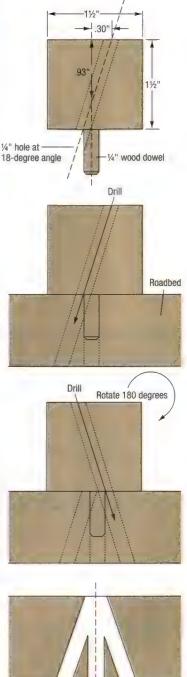
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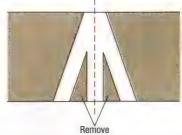


Fig. 6 Drilling block and hole cross section. Robert made the drilling block (top) out of scrap wood and a dowel. As you can see in the cross section, the finished opening should be angled to fit the sensor.

See fig. 5. These holes are spaced about one HO scale car length apart.

Next I used a drilling block to drill two holes slanted at 18 degrees. Following the diagram in fig. 6, I made the drilling block from a piece of scrap wood and a 1/4" wood dowel. I wanted

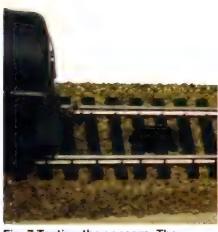


Fig. 7 Testing the sensors. The rounded tank on a black tank car is a poor reflective surface. Robert uses the tank car to test the sensors so he knows that they'll work under the most difficult conditions.

each opening to have the cross section shown in fig. 6. The sides of each opening should be angled to match the sides of the sensor, ensuring a snug fit.

To make each opening, I inserted the dowel on the drilling block into the hole in the roadbed. After lining up the angled hole in the drilling block with the track centerline, I drilled another hole through the roadbed and subroadbed. Then I rotated the drilling block 180 degrees and repeated the process.

Using a hobby knife, I cleaned up the sides of each opening and removed any loose material. From underneath the benchwork I inserted each sensor into its opening in the subroadbed. Then I inserted a toothpick between each side of the sensor and the opening to wedge the sensor snugly in place.

After laying the track, I cut away any ties over the sensors. This track is hidden, so I don't worry about how it looks. You may have to adjust this installation process if you're installing sensors into existing track or have thicker benchwork on your layout.

Next I ran the four-wire cable under the benchwork and installed the LEDs in the control panel. The circuit is connected to a 12V DC power supply.

In fig. 7 you can see how I test the sensors using a black tank car. Everything worked, and now my operators have an easy way to take a train from the main into hidden staging without having to peer over a view block. MR

Robert Frey lives in Milwaukee. He began his HO scale Union Pacific & Western RR layout in 1978 and has been a member of the National Model Railroad Association since 1969.



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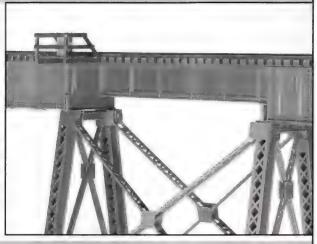
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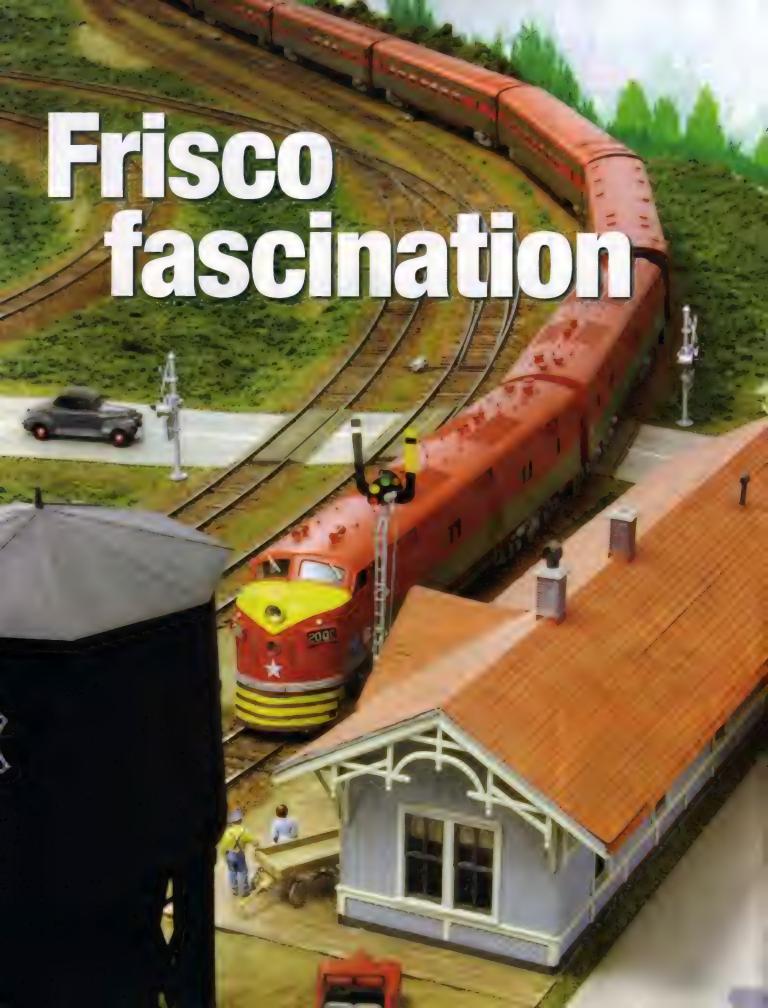
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### A chance locomotive purchase sparked an interest in Plains railroading

By George Pierson • Photos by the author unless noted

ich Dowling's fascination with the St. Louis-San Francisco (Frisco) didn't come from living near the line. Instead, as if by chance, one of his earliest brass engine purchases happened to be a Frisco steamer. Rich's desire to learn more about the engine's home road led him to reading and research. Before long, Rich was a Frisco fanatic.

Rich started building this layout, his first, almost 30 years ago. As a sign

1. The eastbound *Texas Special*, the premier passenger train on the St. Louis-San Francisco, glides to a halt at Vinita, Okla., on Rich Dowling's HO scale Frisco Lines layout. Pulled by two Electro-Motive Division E7s, this colorful train won't need that water tank. Kevin Jacobs photo

in his layout room proudly proclaims, "The gold spike was driven on March 15, 1980 at 1:15 a.m."

The Frisco may not be the most popular prototype among model railroaders, but it has everything most modelers could want. Though it never reached the second city in its corporate title, its lines radiating from Springfield, Mo., reached surprisingly far – from central Texas in the west to Pensacola, Fla., in the Southeast, plus Kansas City and St. Louis. The Frisco stabled some of the most modern steam locomotives; it even built its own engines and streamlined others. Its first-generation diesels carried some of the most colorful paint schemes in railroading.

On his layout, Rich has managed to capture the feeling of the central Plains states, the small towns with their grain

2. The boys at the Frisco's Springfield, Mo., shops are proud of the streamlined features they've added to engine no. 1031. Here she is wheeling the Firefly past the tower at JD Junction in the late afternoon. Note the unusual front-end placement of the whistle and bell.

elevators and cattle pens, and the busy Frisco rails during the 1950s. His HO scale 15 x 35-foot layout is loosely based on the Frisco lines in Oklahoma, Missouri, and Arkansas. Though the place names are taken from towns along the Frisco's route, Rich hasn't tried to model specific locales.

### Benchwork and track

The track plan was inspired by a New York, Ontario & Western plan in the book *Railroads You Can Model* (Kalmbach Books, now out of print). It allows continuous running for open houses, but also has a number of 20-car passing sidings and hidden staging tracks for use in operating sessions.

More than 90 percent of the track, including the turnouts, is handlaid. A friend, Jack Wagner, was a considerable



3. The Frisco's 130-foot turntable at Granby, Mo., can handle anything from that F-M switcher to Frisco's heaviest steam power. Today it's turning no. 1340, a 2-8-0 just off a local run. The fully indexed turntable is from Diamond Scale.



4. The bright clouds and blue skies of the prairies light up the sanding facilities at Granby, Mo. Rich lettered a Proto 2000 E8 as Frisco no. 2013.

help to Rich on this phase of constructing his layout.

Rich uses code 83 rail for the main line and code 70 for sidings and yards. The tightest curve is a 30" radius, and a number of curves are superelevated, making for a terrific effect when Rich runs his passenger trains.

The layout is supported by L-girder benchwork. The roadbed is wood spline subroadbed topped with Homasote. Rich likes a high viewing level for his track – between 55" and 60".

The layout runs on Rich's original direct-current block control system. From a master control panel, the dispatcher can align most of the turnouts and route power from the four walk-around mainline cabs to the track. Many of the turnouts can also be locally controlled. The three main yards each have their own throttles.

Rich's Frisco system is completely scenicked, and his prairie scenes ring true with anyone who has visited the central Plains.

The scenery is plaster over screen wire, covered with various colors of



### The layout at a glance

Name: Frisco Lines Scale: HO (1:87.1) Size: 15 x 35 feet

**Prototype:** St. Louis-San Francisco **Locale:** Missouri and Oklahoma

Era: early 1950s
Style: walkaround
Mainline run: 200 feet
Minimum radius: 30" (main),
24" (sidings and yard)

Minimum turnout: no. 8 (main), no. 4 (sidings and yards)

Maximum grade: 1 percent Benchwork: open grid

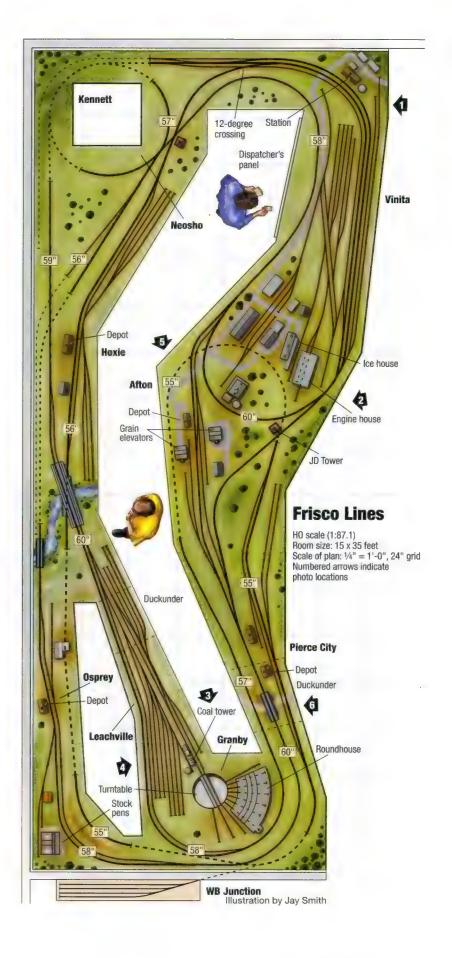
Height: 55"-60"

Roadbed: Homasote on spline Track: handlaid Code 83 (main); code 70 (yards and sidings)

Scenery: plaster-dipped paper towels over wire screen

Backdrop: painted on the walls

Control: cab control





5. A couple of loungers on the station platform at Afton, Mo., watch a freight sweep through town behind engine no. 4006, a handsome 2-8-2. Rich painted and lettered the brass engine; the station is a Dyna Models kit.



6. The rails are busy outside of Pierce City, Mo., as Pacific no. 1038 blows its whistle for the grade crossing. Rich painted and lettered the Sunset engine and built the caboose from an American Model Builders kit.

ground foam. Most of the structures are kits, ranging from older Campbell and Alexander kits up to the more contemporary offerings of Walthers and American Model Builders. There are also a number of scratchbuilt structures on the layout.

### **Focus on locomotives**

Most of Rich's interest has been devoted to modeling motive power and

rolling stock. He has painted and lettered a fleet of steam and diesel locomotives representing every class of engine in service on the Frisco in the early 1950s. Most of his steam locomotives are brass. He has painted and lettered the vast majority of them, including some of the more complex lettering and striping schemes, such as the one used on the Frisco's semi-streamlined steam passenger power.



After retiring from the power plant/petrochemical design field, Rich Dowling moved with his wife Gloria to Wheatfield, Ind., where he is planning a new version of the Frisco in HO scale. He got interested in trains while growing up on the southwest side of Chicago. He still has the first train set he received as a child, a Penn Line F7 A-B set. His other hobbies include gardening and restoring collectible cars.

Rich's diesels, most of them recent offerings from Stewart, Walthers, and Bachmann, are all first-generation. His favorite train is a brass model of the *Texas Special* by Hallmark.

### The road ahead

For most modelers, nearly three decades is a long life for a model railroad, and Rich says that he's very pleased with the results. The layout has always run reliably, and the only major change since completion was the addition of a staging yard. Rich says that if he had it to do over, he'd eliminate the duck-unders and develop a peninsula-style track plan that uses double-sided back-drops to separate scenes.

As it turns out, Rich will have a chance to try some of these new ideas. Not long after this article was written, Rich and his wife retired to Indiana, a move that necessitated tearing down the layout you see here. As you read this, Rich is busy with the beginnings of a new and better Frisco layout.

George Pierson lives in the Chicago area and models the Pennsylvania narrow gauge Tuscarora Valley RR, about which he has written a book, Tommy Varner's Red Rooster: A History of the Tuscarora Valley Railroad (Juniata County Historical Society). He is a National Model Railroad Association Master Model Railroader and a philosophy instructor at Trinity Christian College.



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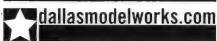
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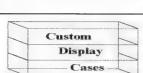
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### Wiring your layout, part 2: cab bus

Besides track, which I covered in last month's column, another major Digital Command Control (DCC) wiring project on your layout will be the cab (throttle) bus. Cab bus wiring isn't solely for model railroads that have tethered throttles. Layouts with wireless throttles need it as well to connect the command station to the wireless receivers. Follow along as I explain different ways to wire a cab bus.

In today's world most electronic devices use a computer in one form or another, and DCC throttles are no exception. Connecting the throttles together is a type of computer network, and a cab bus should be treated like one. You must obey all the rules the DCC manufacturer states in its documentation. The cab bus begins at the command station and extends to the rest of the layout.

Most DCC manufacturers sell some sort of cab plug panel that is made to be installed in your layout's fascia. These are set up so the throttles plug into the front, or aisle, side and the cab bus connects to the back. The connections typically use a plug-in connector similar to those on the throttle. There are usually two connections so the bus can continue to the next panel.

All electrical networks that have more than two connections, in this case more than two cab panels, can be configured in multiple ways. The first is a daisy chain. The source (command station) is at one end of the chain. The bus leaves the command station and goes to one panel in one direction. It then connects to the next panel in line, and so on, continuing the chain.

The second is the T. As the name implies, the bus originates at the bottom of the T and goes to a panel at the top of the T. From there it goes in two different directions to two other panels. This can be repeated over and over.

A third configuration is the star, which more accurately looks like an asterisk. One panel or the command station is in the middle, and the cab bus fans out to many



Fig. 1 Throttle panels. DCC Corner columnist Mike Polsgrove explains how to wire a cab bus in part two of "Wiring your layout." Here we see one of the throttle panels on his HO scale Soo Line layout. Mike Polsgrove both photos



Fig. 2 Command station. Mike used a dual six-conductor telephone jack to send half the bus in one direction and half in the other, forming a T network. The command station is below the roundhouse shown in fig. 1.

panels. Multiple stars can exist in the same cab bus.

A single cab bus can be of one type (daisy chain, T, or star) or a combination of any or all of them. Just be careful not to run the bus back on itself in a loop. You must follow the manufacturer's recommendations when wiring your cab bus. If you don't, your trains may operate poorly or you may damage the throttles or command station.

Model Rectifier Corp. and all other manufacturers allow their buses to be daisy-chained. Digitrax, Lenz, and NCE state that Ts and stars are acceptable. All three use a similar electrical method for their buses, but how the bus is used is different. If you have a CVP system, be aware that it uses a different type of cable that can only be daisy-chained.

Many manufacturers, such as Digitrax, Lenz and NCE, use sixconductor flat phone cable and RJ12 connectors for their networks. It's important to note that the networks, though similar in how they're wired, are different. Throttles from one system aren't interchangeable with throttles from another system. Tony's Train Exchange markets a Universal Throttle Panel (UTP) that can be used with any of these systems.

Throttle panels. I mounted the throttle panels on my layout at irregular intervals because it made sense to put them where they're needed. I have one at each end of the Stevens Point Yard, one at the Stevens Point roundhouse, as shown in fig. 1, and one each at the Stevens Point industrial district, Marshfield, the east/west staging yard, and my workbench.

My DCC command station is under the Stevens Point roundhouse, as you can see in **fig. 2**. Because of the way my model



Fig. 3 Crimping tool. You can make your own throttle panel cables with a crimper. In addition to the crimping tool, this device has a wire cutter and stripper. Jim Forbes both photos

railroad is laid out, half of the cab panels are east of the command station and half are west. I used a dual six-conductor telephone jack to send half the bus in one direction and half in the other, forming a T network. From there on, the jacks are daisy-chained. My workbench is at one end of one line. Here I used a regular phone jack instead of a throttle panel.

I could have ordered customlength cables from a variety of sources. Instead, I made my own using materials available at most local hardware stores. I made the cables by crimping an RJ12-style six-conductor connector to a sixconductor flat cable. A crimping tool is shown in **fig. 3**.

It's important that the cables are one-to-one, meaning that pin one of the first connector is connected through the cable to pin one of the second connector. To do this, the tab of the first connector must be up and the tab of the second connector down. Cables usually have a seam on one side so you can tell how they're oriented, as shown in fig. 4.

In addition to providing a link for the computer network, these kinds of cab buses provide power for the throttles when they're plugged into the bus. For this reason, some manufacturers recommend heavier wire to carry the current necessary for long buses. Most phone cable is between 26 and 28AWG, but 24AWG would be better.

Some throttle panels also have jacks to plug in external power supplies to help power the throttles



Fig. 4 Making connections. Bus cables need to be one-to-one, with one clip facing up on the seam side and the other facing up on the smooth side, as shown above.

on the bus. On Digitrax DCC systems, this prevents the throttle's batteries from draining while the command station is off between operating sessions.

Some people prefer five-pin DIN-type connectors over the RJ12 connectors. Some throttle panels use the DIN connectors for the throttles and RJ12 connectors for the bus.

CVP's cab bus is a bit different than the others. It uses a six-conductor cable and RJ12 connectors between the command station and a throttle extender board. The cab bus from the throttle extender and the throttle panels use a TV-style coaxial cable that can also be made to custom lengths with crimpers, cables, and connectors available at most hardware and home improvement stores.

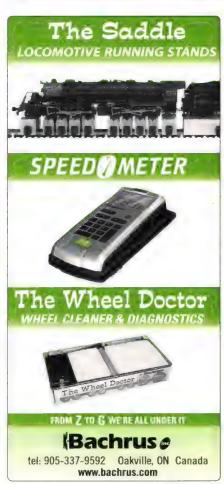
Wiring is easy and doesn't have to be done all at once. In fact, since the cab bus is a type of computer network, it's better to do a little at a time and test it in use. This way if you encounter a problem, it's probably the last segment you connected. Also, be sure to check the manufacturer's instructions to make sure you didn't miss a step.

With a properly wired cab bus, you can enjoy hours of smooth operation on your layout.

Send your questions about Digital Command Control to DCC Corner, *Model Railroader* magazine, P.O. Box 1612, Waukesha, WI 53187, or e-mail dcc@mrmag.com. We regret we can't answer all the questions we receive.







# **Product Reviews**



# Synchronized smoke and new sounds highlight the Paragon2 HO scale Hudson

New York Central Hudsons have been available in HO in the past, and Broadway Limited Imports released its first dual-mode Digital Command Control sound-equipped J-1E back in 2002 (See the November 2002 Model Railroader for a review of that model.) So what's special about this release? This Hudson is the first BLI steamer equipped with the firm's Paragon2 DCC sound system and the first to include an operating smoke unit. For any NYC steam fan, it's worth a look and listen.

An NYC throughbred. Beginning with the J-1 in 1927, 4-6-4 Hudsons became the premier passenger locomotives on the New York Central. The prototype for our review sample, class J-1E no. 5344, was built by the American Locomotive Co. in 1931. The engine was streamlined in 1934 to haul the Commodore Vanderbilt and again in 1939 to lead the Twentieth Century Limited. The NYC removed the locomotive's streamlining in 1945, and no. 5344 ultimately met the scrapper's torch in 1954.

**Sound and smoke.** Both sound and smoke effects are available to DC and DCC users of the J-1E. On DC

layouts sounds are limited to background effects (such as the air pumps and steam releases) when the model is at rest, and chuffing sounds synchronized to the motion of the drivers when the model is under way. I also triggered the sound of squealing brakes when I decreased the throttle abruptly, and could ring the bell and blow the whistle, using our power pack's direction switch.

Broadway Limited also sells the DC Master analog DC controller (\$39.99) to be wired between the power pack and the track to offer easier user control of the bell and whistle. You can also use the AUX button on the controller to turn the smoke unit on or off. A slide switch inside the locomotive cab controls the smoke unit.

In DCC, function 7 controls the smoke unit. More noticeably at slow speed, the puffing smoke is synchronized with the motion of the drivers, as is the correct sound of four chuffs per driver revolution. At high speed, the model pours smoke from the stack, leaving a visible white cloud that hung over the trailing coaches as I ran the engine on our layout.

Many other user-triggered functions and programmable

features are available when running the model on a DCC layout. The bell and whistle sound correct, according to recordings of Hudsons that I've heard. User-controlled effects also include the injector, the stoker engine, and the sound of slack being let out of the couplers of passenger cars in tow.

I especially like the ability to easily adjust the intensity of the chuffing sounds, using function 5 (increase chuff intensity) or function 6 (decrease chuff intensity). With these two functions you can simulate the sounds of a locomotive starting out with a heavy load or "drifting" as it runs light or heads downgrade.

When you push function 14 you'll hear the conductor call out, "All aboard!" and when you press functions 15, 16, or 17, you'll hear an engine crew member announce "Yeah, it's green," or "Highball" or "We're lined up through the main, let's pull out."

#### More on our Web site

Subscribers can see and hear the DCC-sound-equipped HO scale Hudson run on our layout. Visit our Web site at www.ModelRailroader.com.



#### Reviewed in this issue

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- 86 Blackstone HOn3 high-side gondola Walthers HO blower house kit

Dana Kawala

#### HO scale J-1e Hudson

Price: \$349.99 Manufacturer

**Broadway Limited Imports** 4 Signal Ave., Suite C Ormond Beach, FL 32174 www.broadway-limited.com

Road names: New York Central J-1E nos. 5344, 5312, 5327, 5343, 5391, 5396 (Big Four), Toledo, Hamilton & Buffalo. Undecorated version also available, J-1D: New York Central nos. 5277 and 5278. Roman or Gothic lettering versions. See BLI Web site.

Era: 1931 to early 1950s

**Features** 

Dual downward-facing speakers in tender

Electrical pickup on four drivers and all tender wheels

Engine and tender weight: 1 pound 6 ounces

Five-pole skew-wound can motor with brass flywheel Minimum radius: 18" Paragon2 dual-mode DCC

sound decoder

#### **BLI Paragon2 J1E Hudson**

Danishan midl	4 ounces			
Drawbar pull	19 HO scale passenger car		rs	
Scale speed (	DC)	Scale speed	(DCC)	
Volts	Scale mph	Speed step	Scale mph	
8 (start)	1.6	1	1.6	
9	8.4	7	8	
10	35	14	20	
12	67	28	80	
Current draw		Slipping	.4A	
at 12 volts (DC)		Stalled	.6A	

Other effects are the same as on the Paragon2 diesels, and I find them less useful. These include various industry, city, or farm sounds that are distracting coming from a locomotive. I think these effects are best left to a background sound unit.

One of the most interesting features of the Paragon2 decoder is the ability to record what BLI refers to as a "macro," where the engine will run an automated operating sequence. Although this sequence is recorded using function 27 and

played back using function 26, you can remap these functions to any function key on your DCC cab by following the included instructions.

With this macro feature you can have the Hudson leading a passenger train around your layout automatically making stops or performing other moves, while you work a yard or run another train.

Performance tests. I ran the J-1E in DC using a Model Rectifier Corp. Tech 4 power pack and in DCC using an MRC Prodigy Advance system. The model ran well in both DC and DCC.

In DC, as with other soundequipped models, the Hudson requires a lot of voltage to get going, but accelerated smoothly throughout its speed range. In DCC the model did well in our 28-speedstep tests, but speed control at slow speed is more precise using 128 steps. The 80 scale mph top speed is close to that of the prototype.

Equipped with two traction tires on its third driving axle, the BLI Hudson has plenty of power to haul a full HO scale passenger train. A user-installed non-traction tire set is also included.

Appearance. The Paragon2 model uses the same tooling as the 2002 release. Most of the dimensions come within scale inches of official J-1E locomotive diagrams from the Kalmbach library and drawings published in the February 1937 Model Railroader.

One correction to the running gear that BLI has made since the 2002 release is that both eccentric cranks now correctly lean forward when at their lowermost position. The pilot wheels would look more realistic if they were painted black.

The locomotive and tender body shell and other details are primarily plastic. All molded details are sharp and their placement matches prototype photos. Most of the model's piping and other details, like the throttle linkage, whistle, and bell, are separately applied.

Our review sample came with pre-1939 New York Central Railroad Roman livery. The lettering



The cab interior includes a detailed backhead and movable cab apron.



The locomotive tender has an operating backup light.

placement matches prototype photos of no. 5344 before she was first streamlined. Even the small locomotive classification is legible and straight.

The cab interior also has a highly detailed backhead and includes two painted crew figures.

The BLI class J-1E Hudson was already a great-looking model when it was first released seven years ago. Now with its new Paragon2 DCC sound system and realistic smoke, it looks even better hauling an HO scale train of New York Central's best varnish. - Dana Kawala. associate editor

#### **Product Reviews**



# Kato N scale EMD SD70ACe scores high in appearance and performance

If you live near a Union Pacific main line, you may have seen the prototype for this Kato N scale diesel-electric locomotive. The Kato SD70ACe diesel offers plenty of prototypical detail and reliable performance. There are also dropin Digital Command Control (DCC) decoders available for the model.

**Prototype.** General Motors Electro-Motive Division built the SD70ACe to give freight railroads an alternative to the General Electric ES44AC Evolution Series. Both dieselelectric locomotives were designed to meet stricter Environmental Protection Agency standards that went into effect in 2005.

Unlike the all-new GE "GEVO" engines, EMD based its design on the 16-710 engine, which had been used in the SD70 and SD70MAC for more than a decade. The new 4,300-hp 16-710G3C-2 in the SD70ACe not only has 10 percent more horsepower than its predecessor, it cuts emissions by 50 percent. Electro-Motive delivered a total of 185 SD70ACe locomotives in 2005.

An extensive article on the development of the SD70ACe (as well as the GE "GEVO" diesels) can be found in the November 2004 *Model Railroader*. The Kato model matches the prototype drawings printed in that article.

Appearance and paint. The Kato model is made primarily of plastic. All the molded details, including the placement of access panel doors and grills, match prototype photos. The roof-mounted radiator fans are especially well done, with fan blades visible under the grills.

All the handrails are gray flexible acetal plastic. Other separately applied details include the global-positioning-satellite dome on the cab roof and the roof-mounted five-chime air horn correctly located in the middle of the hood. The rear m.u. hoses are separate black plastic parts, but those on the front pilot are molded in gray as part of the snowplow.

The "Building America" American flag paint scheme on the model matches prototype photos. There is good color separation between the red striping and the Armour Yellow and Harbor Mist Gray on the body shell. All the lettering is straight.

I noticed that the American flag graphic and the Union Pacific shield on the sides of the body have horizontal lines running through them, which aren't on the prototype. However, these lines are only visible to my naked eye from about two inches away.

**Drivetrain and performance.** I easily removed the model's press-fit

body shell using a toothpick to help separate it from the split die-cast metal frame. Housed inside the split frame are the can motor and dual brass flywheels. Universal shafts transfer power to truckmounted gearboxes.

All six of the model's axles are powered, giving the N scale diesel an impressive drawbar pull of 1.3 ounces. None of the locomotive's metal wheels have traction tires.

The SD70ACe looked great rounding the 15" curves on our N scale layout. The locomotive performed smoothly through turnouts and crossovers.

The printed-circuit (PC) board is mounted on top of the split frame. White light-emitting diodes are at each end of the PC board. Plastic tubes in the body shell pipe light from the LEDs to the headlights and ditch lights.

We tested the model in DC using a Model Rectifier Corp. Tech 4 power pack. The model's mechanism is very smooth and quiet throughout its speed range.

The Kato SD70ACe crept along at less than 1 scale mph and accelerated to 121 scale mph at 12 volts. This is faster than a prototype SD70ACe, which has a top speed of about 75 mph.

Converting the model to DCC is fairly simple. Digitrax and Train

#### N scale SD-70ACe

Price: \$110 Manufacturer Kato U.S.A. Inc. 100 Remington Rd. Schaumburg, IL 60173 www.katousa.com

Road names: (all Union Pacific) American flag (four road numbers) and heritage schemes, Chicago & North Western, Denver & Rio Grande Western, Missouri-Kansas-Texas, Missouri Pacific, Southern Pacific, Western Pacific

Era: 2005 to present

**Features** 

All-wheel drive and electrical pickup

Five-pole skew-wound can motor with dual brass flywheels

Illuminated ditch lights Minimum radius: 9" Operating Kato knuckle couplers at correct height RP-25 contour metal wheelsets in gauge Weight: 4 ounces

#### **Kato N scale SD70ACe**

Drawbar put	1	Scale speed	(DC)
1.3 ounces		Volts	Scale mph
31 N scale freight cars		2 (start)	.4
		_ 3	19
Current draw at 12 volts (DC)		9	62
		12	121
Slipping	.1A		
Stalled	.2A		

Control Systems make drop-in DCC decoders that fit the SD70ACe. Instructions on the Kato Web site focus on the Digitrax DN163K1C and DN163K1D decoders. As outlined in those instructions you'll need to trim the decoder board slightly so that it fits into the frame. The TCS decoder (part no. K1D4-NC) should fit the frame without any modifications. However, you'll need to remove four plastic pins from inside the body shell.

Whether on a DC or DCC layout, a pair of these smooth-performing contemporary mainline diesels would look great hauling an intermodal or unit coal train along an N scale layout. - D.K.



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#### **Product Reviews**



### **HO GP15-1 captures look of prototype**

A smooth-running mechanism and accurate lettering are just two of the highlights of this HO scale GP15-1 by Proto 1000 from Walthers. The ready-to-run locomotive is based on the Electro-Motive Division (EMD) prototype built between June 1976 and April 1983.

The prototype. In just under seven years, EMD built 368 GP15s. Like most locomotives, there were variations. The first produced was the GP15-1, which was manufactured through March 1982. This is the prototype Walthers based its model on, and its dimensions closely match drawings published in the January 1990 Model Railroader.

Other variations include the GP15AC and GP15T. For more on these units, read Andy Sperandeo's article "The GP15-1: EMD's downsized road switcher" in the January 1990 issue of MR.

**The shell.** Our sample is decorated in Burlington Northern's white-face scheme. The paint is smooth and even, the color-separation lines are crisp, and the white is opaque.

The plastic body shell has sharp louver detail but lacks lift rings and grab irons. Molded drill-starter dimples are provided for the latter. The sand-filler hatches, which should be located on the nose and rear of the hood, are omitted.

The pilot has molded dimples for the m.u. hoses, train line, and uncoupling lever. A press-fit beam is located on the front and rear pilots. It can be replaced with the supplied plastic snow plows.

Walthers used acetal plastic handrails on its GP15-1, which are molded in prototypical colors. The vertical handrails by the steps should be white on the BN unit, which is an easy fix for the modeler.

Under the shell. To separate the shell from the die-cast metal chassis, I had to remove the front and rear draft-gear boxes and four screws (one each side of each box). Use care when removing the shell, as the wires that run from the printed-circuit (PC) board to the light-emitting diode headlight are taped to the cab roof.

The model uses a five-pole skewwound motor with dual brass flywheels. Printed-circuit boards are screw-mounted above the motor and rear truck. The GP15-1 is designed for use on direct-current layouts, but the PC board above the motor has provisions for a nine-pin Digital Command Control (DCC) decoder.

#### The Proto 1000 from Walthers

GP15-1 gives the purchaser options. If you operate a DC layout and can live without the small details, this model is ready to go straight from the box. If your model railroad uses DCC or you enjoy adding super detail parts to locomotives, this fouraxle road switcher is the starting point for a fun weekend project. – Cody Grivno, associate editor

#### Walthers HO scale GP15-1

Price: \$109.98 Manufacturer

Wm. K. Walthers Inc. P.O. Box 3039 Milwaukee, WI 53201 www.walthers.com

Era: 1976 to present

Road names (two road numbers each): Burlington
Northern, BNSF Ry. (Heritage I and BN patch), California
Northern, Chicago & North
Western, Conrail ("Quality" slogan), CSX (dark blue),
Norfolk Southern, and Union
Pacific (yard scheme).
Undecorated also available.

#### **Features**

All-wheel drive and electrical pickup

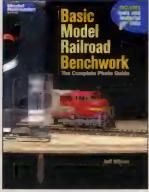
Blackened metal RP-25 contour metal wheelsets, in gauge Constant directional lighting Minimum radius: 18" Proto-Max metal magnetic knuckle couplers, mounted at

correct height Weight: 12.6 ounces

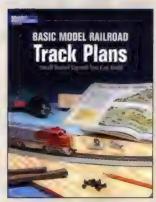
#### Walthers HO scale GP15-1

Drawbar pul		Scale speed	(DC)
2.7 ounces		Volts	Scale mph
38 HO scale fro	eight cars	1.4 (start)	2.2
		3	12
Current draw		9	35
at 12 volts (I		12	76.5
Slipping	.18A		
Stalled	.5A		

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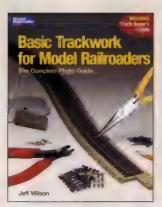
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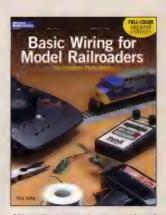


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#### **Product Reviews**



# Make power districts the easy way with ZoneShare

If you've been contemplating splitting your Digital Command Control layout into power districts, you'll want to take a look at the new ZoneShare modules from CVP Products. These easy-to-install components can be used with any DCC system. They feature four circuit breakers with adjustable breaker trip control and light-emitting diode (LED) and audio indication of short circuits. The units also include an auto-reversing circuit for use with return loops, turntables, or wyes. A single ZoneShare can cover four regular power districts or three districts and one section of reversing track. The unit includes a

I tested a ZoneShare ZS4E on the Milwaukee, Racine & Troy, Model Railroader's club layout. The ZoneShare comes in a 5" x 7" black plastic case that I placed on a shelf under the layout. You can also purchase a version of the Zone-Share (model no. ZS4X) without the case at a substantial savings.

12-page instruction booklet.

I commend CVP on providing easy-to-follow instructions with



The unit's features are set using DIP switches and small dials.

clear illustrations and examples. The booklet gives you everything you need to know to use the product, in plain English. And you'll find a simple six-step setup guide on page 2.

Though I tested this unit with CVP's 7 amp ZoneMaster booster and EasyDCC command station, the ZoneShare can be used with almost any brand of DCC system.

Just as a reminder, circuit breaker modules, such as the ZoneShare, don't add power to your layout, they simply help you manage what your DCC system's booster already provides. So the 7 amps of power running into the ZoneShare from a CVP ZoneMaster is shared among the four power districts as needed. If you have a larger layout that requires more zones or additional power to run more trains, then you'll be best served by adding additional boosters. CVP recommends one ZoneShare per booster.

To connect the ZoneShare, I first wired it to the DCC system's booster – CVP recommends 12 or 14 gauge wire for this job. All the terminals on the ZoneShare are equipped with sockets and screws, making it an easy task to attach the wires.

Next, I connected the bus wires for four of our layout's power districts to the A through D track outputs. (Remember that power districts must be electrically isolated from each other in order for the circuit breakers to work properly.) Output A contains the auto-reversing circuit. If you need

#### DCC circuit breaker

Price: ZS4E \$179.95 ZS4X \$129.95 (circuit board only)

#### Manufacturer

CVP Products P.O. Box 835772 Richardson, TX 75083-5772 www.cvpusa.com

#### **Features**

Audio alarm
Adjustable trip current and trip
delay
Four independent circuit

breakers
LED short circuit indicator lights
One auto-reversing circuit
Works with most any DCC
system

this feature, you can activate it by setting DIP switch 4 (X1) on the ZoneShare in the up position. You can use a pencil to set the switch.

Once powered, the ZoneShare's green pilot LED illuminates, indicating its status. In the case of a short circuit, the zone where the short occurs is indicated with a red LED, which remains lit until the short is removed. The unit also includes an audio alarm. To activate this feature, DIP switch 1 (BZ) must be set to the up position.

I tested the ZoneShare in a variety of short circuit conditions, everything from hard shorts using a quarter across the rails, to various derailments, to leaving small tools on the track. The unit worked every time using the factory settings. However, you can also make manual adjustments to the trip sensitivity and the trip delay time. To set the trip current level, use the two small screwdriver-adjusted dials. The range is 1.5 amps to 4 amps, and there's a separate dial for the reversing circuit (zone A). You can also adjust the circuit breaker's trip delay time using DIP switches 2 and 3, as explained in the instruction booklet. The range here is 10 to 40 milliseconds.

Dividing a DCC-equipped layout into power districts will always help provide a smoother-running railroad, and the simplicity of CVP's ZoneShare makes it possible to do this task quickly and easily. – David Popp, managing editor



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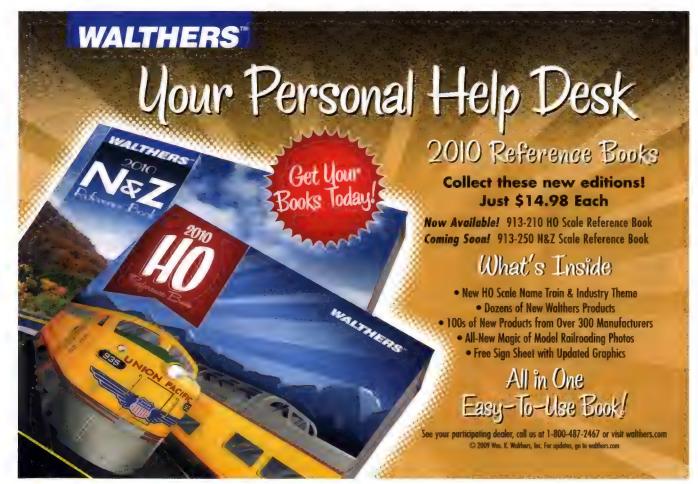
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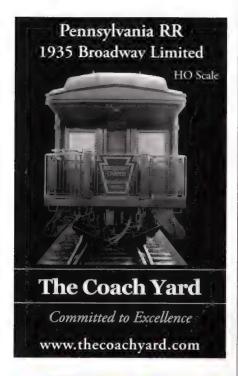
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#### **Product Reviews**

#### Con-Cor HO scale GATX Airslide covered hopper



Price: \$22.98 Manufacturer

Con-Cor International 8101 E. Research Ct. Tucson, AZ 85710-6758 www.all-railroads.com

Era: 1954-1980s

Early- and late-production
General American Airslide
covered hoppers are the latest
ready-to-run HO freight cars from
Con-Cor. I reviewed an earlyproduction car with square ends
that matches prototype drawings
in the January 1961 *Model* 

Railroader. The car is available in

many road names, which can be found on the Con-Cor Web site.

The detailed model has separately applied roof hatches and brake gear. All lettering matches photos of the prototype.

The RP-25-contour metal wheelsets are in gauge. The operating knuckle couplers are at the correct height. The car weight of 3.7 ounces matches the recommendation of National Model Railroad Association RP-20.1.

This HO car is a great-looking model of a common covered hopper. – D.K.

#### ESM N scale Pennsylvania RR G26 gondola



Price: \$26.95 Manufacturer

Eastern Seaboard Models Corp. P.O. Box 301 Waldwick, NJ 07643 www.esmc.com

Era: 1930-1980s

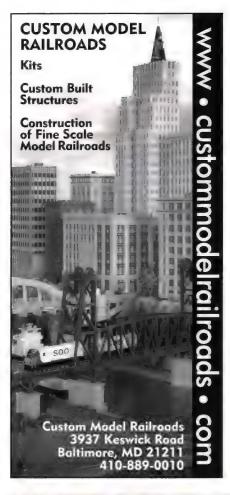
Comments: A faithful N scale model of a long-lived PRR mill gondola is the first ready-to-run car with all-new tooling from Eastern Seaboard Models. Fine interior rivet detail, working drop ends, and low-profile wheels make this model a standout.

The model comes quite close to the exterior dimensions of the prototype as listed in the 1940 Official Railway Equipment Register. The rivet patterns on the outside match a photo in the 1931 Car Builder's Cyclopedia.

On our sample the oxide red paint was even, and the white lettering was sharp and opaque, with all but the smallest text being legible under magnification.

The Micro-Trains magnetic knuckle couplers are body mounted, which on a 65'-6" car could pose problems on tight curves. The manufacturer recommends a minimum 121/2" radius, but our sample did fine around tighter curves.

If this car is any indication, modelers can expect great things from Eastern Seaboard Models in the future. – Steven Otte, associate editor





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#### **Product Reviews**

#### Blackstone Models H0n3 high-side gondola



**Price:** \$39.95 (unweathered), \$44.95 (weathered)

#### Manufacturer

Blackstone Models 210 Rock Point Drive Durango, CO 81301 www.blackstonemodels.com

Era: 1920s to 1950s
Comments: A 1000-series
Denver & Rio Grande Western
gondola is available as a readyto-run HOn3 (HO scale, three-foot
gauge) freight car from Blackstone Models. The model's
dimensions match drawings in
Robert Sloan's A Century + Ten of
D&RGW Narrow Gauge Freight
Cars 1871 to 1981.

Representing a car rebuilt in 1938, the model includes separate truss rods, brake rigging, and interior supports.

All the RP-25 contour metal wheelsets are in gauge and the operating magnetic knuckle couplers are at the correct height per National Model Railroad Association S-2. The car weighs just under two ounces, which is about .3 ounces too light per NMRA RP-20.1.

You'll find a listing of available paint schemes and road numbers for this highly detailed, true-to-the-prototype model on the Blackstone Web site. – D.K.

#### Walthers HO blower house kit

Price: \$149.98 Manufacturer

Wm. K. Walthers Inc. P. O. Box 3039 Milwaukee, WI 53201

www.walthers.com

Era: 1930s to present day Comments: This large blower engine house is part of Walthers' Ashland Iron & Steel line of heavy industry kits. Modeled from a prototype in Lorain, Ohio, it houses the huge compressors that operate a blast furnace.

This plastic kit is easy to assemble and the finished corrugated-metal structure is a scale 46 feet wide, 116 feet long, and 85 feet tall (over the stacks). The superb access stairway adds another 8 feet to the overall width.

The kit is designed to complement Walthers' blast furnace model, so it includes three different sizes of large pipes and fittings that may be used to



connect the two structures. An extra piping kit is also available.

This model introduces a new tapered window treatment that really works well. Each window frame is a tapered plug that fits tightly into its opening and is held in place by the clear glazing cemented to the interior wall.

This kit's design makes it a great candidate for kitbashing. Its major components can easily be rearranged, and the doors and details are adjustable as desired.

– Jim Hediger, senior editor



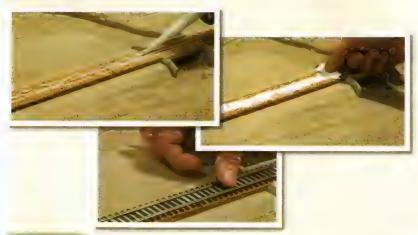
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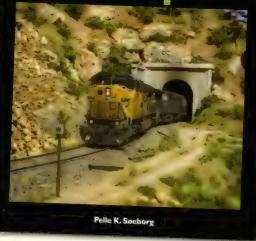
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PELLE K. SØEBORG is a graphic designer in Farum, Denmark. He has written a number of articles for Model Railroader and is the author and photographer of the books Mountain to Desert: Building the



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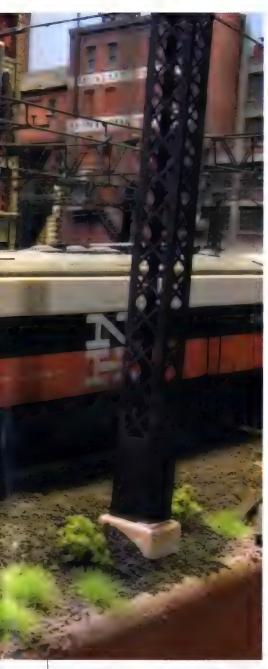
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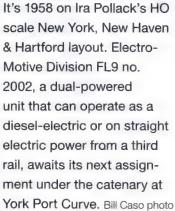
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Trackside Photos is a showcase for the work of *Model Railroader* readers. We encourage contributions. Send your photos (original color slides or digital images 5 megapixels or better on CD-ROM) to: *Model Railroader*, Trackside Photos, P.O. Box 1612, Waukesha, WI 53187-1612. Include caption information, such as a description of what's going on in the picture; the name, scale, era, and locale of the layout; and information about the rolling stock or structures pictured. For a copy of our photo submission guidelines, contact editorial associate Eric Stelpflug at 262-796-8776, ext. 583, or mrmag@mrmag.com.

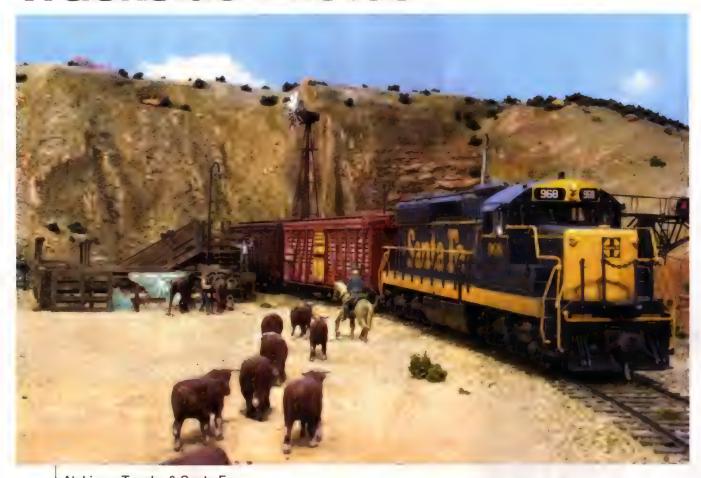






Gas-electric no. 51 rumbles past Glen Oaks on its last run of the day on Gerry Leone's HO scale Bona Vista RR, featured in *Great Model Railroads 2008*. Gerry painted and decaled the Walthers doodlebug. All the structures in town are scratchbuilt except for the grain elevator, which is a Campbell kit. Gerry also took the photo.

### **Trackside Photos**



Atchison, Topeka & Santa Fe SD24 no. 968 spots empty stockcars at the loading chutes of the Diamond D Ranch in Darling, Ariz. Soon cattle and sheep will be on their way to eastern markets. The HO scale layout, built by Peter Youngblood of Kennesaw, Ga., is a composite of the Santa Fe's Colorado and Albuquerque divisions. Peter took the photo.







Davide Raseni of Trieste, Italy, built this HO scale diorama to showcase an Electro-Motive Division locomotive little known to those outside Europe – a Yugoslav Rys. Class 661 type 16 Co-Co. The diorama represents a portion of the Istriana rail line that runs across the Istrian peninsula between Slovenia and Croatia. Davide photographed it outdoors.

Two Chicago & North
Western General Electric
Dash 9-44CW locomotives
lead a train east on the
former Rock Island main line
toward Nevada, Iowa. The
action takes place on the HO
scale St. Paul & Southern
built by Al Warren of Ames,
Iowa. Doug Warren photo

#### Trains of Thought

### Down by the depot

**Tony Koester** 



It's train time at Summitville, N.Y., on the New York, Ontario & Western as interpreted in HO by O&W authority Mal Houck. The junction area is only a weedy wide spot near the highway today, but this image recalls happier times in the Catskill Mountains. Mal Houck photo

When Judy, the kids, and I moved from Indiana to New Jersey back in 1969, one of the first car trips we took was to explore the right-of-way of the New York, Ontario & Western, the first major U.S. railroad to be abandoned. It ceased operations in 1957, but its endearing characteristics created a following among railfans and modelers that endures to this day.

Among the best-known practitioners of the art of modeling the O&W are Bill Schneider and Mal Houck. They collaborate on many projects, and Mal has also built some memorable dioramas, such as the one shown above.

Like many of the best modelers of prototype scenes and equipment, Mal looks far beyond the limitations of what he can accomplish with modeling materials as he recreates a bit of history, if only in miniature. "Many of the images of rail history that we enjoy of trains coming or going were staged and taken at or close by a depot," Mal observed. "And the depots of the New York, Ontario & Western were often more significant than depots in other regions, if only due to the very rural nature of the territory they served." Put another way, if the O&W hadn't hacked its

way across the grain of the northern Appalachians, getting goods and people in and out of those remote towns would have been a lot more difficult.

Indeed, the rural depot was the portal to the rest of the world. Fading images of the first train into a town being greeted by throngs of happy townspeople and farmers plus the town band weren't staged. The joy evident on their faces was as real as the steam train. At long last, they could travel to the big city to shop, visit relatives, or catch another train or ship to travel even farther afield.

Railroads underscored their status as the way out of town by the stations they built and maintained. The good man who proudly wore the title of Station Agent walked to and from work with his head held high; he was an important figure in his town, and even the mayor knew his name.

In somewhat larger towns, the agent might also have a telegrapher working with him. "The telegraph clattered with messages from the outside world," Mal continued, "the first news of a new President, the winner of the World Series, the outcome of a championship boxing bout, the arrival of

a loved one, the first news of war, and at long last the news of peace."

If you drive along the route of the O&W, as I've often done, you will pass through or by New York state villages with names like Cadosia, Roscoe, Livingston Manor, Summitville, and Highview. In a few of these locales, your railroad-oriented eve will quickly spot a forlorn structure that could have served no other purpose than to greet trains and their passengers and lading. You will at once feel the palpable delight of discovering an edifice of the past, a tangible bit of railroad and transportation history that should by all rights be long gone.

And then the inevitable sadness will set in as you realize you missed the show; the O&W is gone forever. A geometrically precise trail through the underbrush is the very best you can hope to see. Save for some cuts and fills, a tunnel here and there, and a few depots, it's completely, utterly gone.

Almost. Thanks to skilled and dedicated modelers such as Mal and Bill, the salad days of the O&W can be seen once again, albeit in miniaturized form. No matter; model railroading is still the best time machine yet devised. Yellow-striped gray FTs and F3s and handsome Mountains and even the ungainly Bull Moose 2-10-2s once again bellow across the verdant Catskill countryside.

And, as always, the very best place to watch the action is down by the depot. Be it the massive brick depot and railroad head-quarters that still stands in Middletown, N.Y., or a small frame structure recalling the days when numerous passenger trains brimming with happy city folks headed to the mountains by rail for a fresh-air vacation, the almost magical ability of model railroading to carry us back to a favorite time and place is nowhere more evident.

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2. The photo must feature a model railroad scene and be taken by the contestant. Each contestant is limited to three entries.

3. Each entry must include a description of the photo. Include the name of the person who did the model work, the scale, the brand names of any equipment shown, and any special modeling techniques used. Also include a brief description of your photography techniques, including any digital enhancements, and the camera and settings used.

4. Digital enhancement of photos is acceptable. However, over-enhancement of images - such as an abundance of digital smoke or the digital insertion of real-life objects into the photo - may diminish your chances of winning.

5. All entries must be received in our office by Oct. 30, 2009. Non-winning entries will be returned only if a stamped, self-addressed envelope is provided.

6. Published photos become the property of Model Railroader magazine. Model Railroader reserves the right to retain any entry for possible future publication in our Trackside Photos department or another part of the magazine at normal payment rates.

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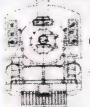
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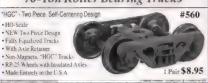




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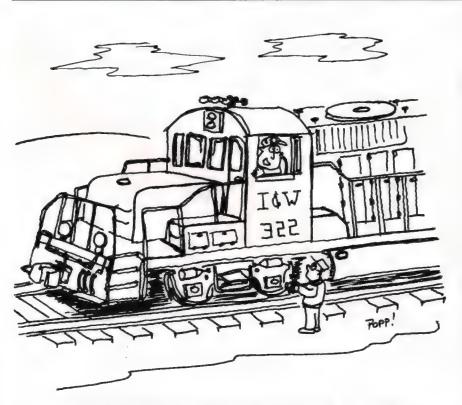
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CLOSING DATES: Jan 2009 issue closes Oct. 17, Feb. closes Nov. 18, Mar. closes Dec. 16, Apr. closes Jan. 16, May closes Feb. 16, June closes Mar. 20, July closes Apr. 17, Aug. closes May 15, Sept. closes June 18, Oct. closes July 17, Nov. closes Aug. 18, Dec. closes Sept. 18.

Note to Readers: Show dates, times and locations sometimes change. Confirm the details before driving any distance. Please go to www.mrmag.com and click on the Schedule of Events section to get more complete information on these and other coming events.

#### Schedule of Events

AL, BIRMINGHAM: Smoky City Rails Spring Model Train Show/Sale. 1st Baptist Church of Zion City, 1104 Gene Reed Road. Saturday, December 5th, 9am-4pm, S5.00 adults; 8-12 S1.00: Under 8 FREE. Handicap Accessible. FREE Parking. Operating Layouts. Door Prizes. Play with trains. Sonny, 205-980-0611 or scrmrc@aol.com

CO, COLORADO SPRINGS: SLIM RAIL MODEL RAILROAD SHOW & SWAP MEET. Rampart High School, 8250 Lexington Dr. (at Union Blvd.), October 17, 2009. 9:30am:3:00pm. Adults \$4.00, kids w/adult free, family \$6.00. Operating layouts, tables by reservation, Info: John Campbell, 18510 Augusta Dr., Monument, CO 80132; 719-481-2698; johnfn3@msn.com

CO, MONTROSE: WESTERN COLORADO MODEL RAILROAD EXTRAVAGANZA Hosted by: San Juan Model Railroad & Historical Society. October 3rd (10:00am-5:00pm) and 4th (10:00am-4:00pm) 2009. At the Montrose County Fair Grounds, 101 North 2nd Street. Contact: Paul County Fair Gr 970-323-6469.

CT, DURHAM: NEW HAVEN SOCIETY OF MODEL ENGINEERS TRAIN SHOW Durham Fairgrounds, Rt. 17. Sunday, October 4, 2009, 9:00am-3:00pm. Featuring societies O scale operating brass lift bridge. Layouts, dealers. Adults \$6.00, seniors \$5.00, children 5-12 \$1.00, under 5 free. Info: 203-269-4940.

CT, FAIRFIELD: "STATION STOP '09" TRAIN SHOW. Fairfield Ludlowe High School, Unquowa Rd. Sunday, October 25, 2009, 10:00am-4:00pm. Adults \$6.00, under 13 \$2.00, Contact Jack Ciarletto 203-374-1118. www.housatonicmr.org

CT, NORTH HAVEN: NEW HAVEN RAILROAD HISTORICAL AND TECHNICAL ASSOCIATION 47TH ANNUAL REUNION AND TRAIN SHOW. Holiday Inn. Rte. 5, Exit 12 off I-91. Saturday. November 14, 2009. Train show 9:00am-3:00pm. Films, slide shows, modeling clinics, dealers. \$5.00/Adult. \$8.00/Family. Information: Rick Abramson at e-maili: nhrr379@att.net

FL, DELAND: 29TH FLORIDA RAILFAIR. Volusia County Fairgrounds, Tommy Lawrence Arena, October 3, 2009, 9 AM to 4 PM. Adults: \$6.00 (under 12 free). Large operating layouts. Miller, 3106 N. Rochester St., Arlington, VA 22213. 703-536-2954. E-mail: rrshows@aol.com

FL, OCALA: LIONS SEMI-ANNUAL TRAIN SHOW Ocala National Guard Armory, 900 SW 20th St. November 14-15, 2009, Saturday 9:00am-4:00pm and Sunday 10:00am-3:00pm. Adults \$4.00, children 12 and under free. Information: Barbara West 352-857-2874.

FL, PINELLAS PARK: 57TH TRAIN SHOW. H&R Trains, 6901 U.S. Hwy. 19 N. October 2, 3, & 4, 2009. Friday and Saturday 10:00am-9:00pm, Sunday 10:00am-6:00pm. Free admission. Contact Alice Morris or David Beiter 727-526-4882. Fax: 727-526-3439. E-mail: hrtrains@hrtrains.com Internet: www.hrtrains.com

IL. DECATUR: DECATUR TRAIN FAIR 2009 Decatur II., DECATOR: DECATOR THAIN FAIR 2009 Decatur Civic Center, 1 Gary K Anderson Plaza, Corner of Eldorator Street and Franklin Street. September 19-20, 2009. Saturday 10:00am to 5:00pm, Sunday 10:00am to 4:00pm. Adults \$4.00, under 12 free with adult. Steven Bricker 217-864-4397, sabricker@comcast.net

IL, WHEATON: 54TH ILLINOIS PLASTIC KIT & TOY SHOW DuPage County Fairgrounds, 2015 W. Manchester Road at Home Ec & Annex building. September 27, 2009 from 9:00am-2:00pm. Adults \$5.00 children under 12 \$2.00. 160 tables available. Contact George at: 630-969-1847.

IN, CROWN POINT: CROWN POINT MODEL RAILROAD SHOW & SWAP MEET St. Matthias Church Hall, 101 Burrell Dr. Sun. Oct. 25, 10:30am-3:00pm. \$3.00, children \$1.00. Tom 219-663-4480.

IN, DANVILLE: CENTRAL INDIANA DIVISION ANNUAL TRAIN SHOW Located at Danville 4H Fair Grounds. October 17, 2009, 10:00am-4:00pm. Admisison is FREE. Operating layouts, vendors with railroadiana, books, tapes, DVD's, modeling clinics. Good food and snacks. John Pancini 317-272-3796, jpancini@indy.rr.com

IN, SOUTH BEND: SJVRR TRAIN SHOW AND SALE South Bend Elks Lodge, 3535 E. McKinley Avenue. Our semi-annual train show and sale will be held Sunday, October. 18, 2009, 10:00am-3:00pm. \$4.00 individuals, \$8.00 family. For table information contact David Korkhouse 574-272-6436 or www.sjvrr.com

KS, HAYS: WESTERN KANSAS TRAIN SHOW Hays Mall. 2918 Vine St. September 12-13, 2009, Saturday 9:00-5:00 and Sunday 11:00-4:00. \$5.00 admission, 12 and under free. Operating layouts and 80 tables of trains. Door prizes. Contact Kevin Keeler, 417-838-5615, klk@mchsi.com

MA, HINGHAM: SOUTH SHORE MODEL TRANSMAY CLUB FALL OPEN HOUSE/SHOW. Bare Cove Park, Building 51, 19 Fort Hill Street. October 24-25, 2009. Saturday 9:00am-4:00pm; Sunday 10:00am-4:00pm. Milita planhant table. clinics. rail movies, raffle and club cars MA, HINGHAM: SOUTH SHORE MODEL RAIL-White elephant table, clinics, rail movies, raffle and club cars for sale. Jack Foley, www.ssmrc.org 781-740-2000, E-mail ssmrc@verizon.net

MA, WAKEFIELD: NORTH SHORE MODEL RAILROAD CLUB SHOW AND OPEN HOUSE Show: Americal Civic Center, 465 Main St. Saturday, October 17, 2009, 10:00am-3:00pm, Open House: 404 Main Rear, October 17-18, 2009, 10:00am-3:00pm. Adults 00, children/seniors \$1.00, under 5 free. Joe Greene 781-245-4742, Email info@nsmrc.org

MD, TIMONIUM: GREAT SCALE MODEL TRAIN PLUS HIRAIL & COLLECTIBLE TRAIN SHOWS. Maryland State Fairgrounds, October 10-11, 2009, Saturday 9:00-4:00pm, Sunday 10:00-4:00pm, Adults \$9.00, family \$18.00, under 15 free, Free parking, Over 600 vendors plus many huge display layouts. Howard Zane 410-730-1036, hzane1@comcast.net www.GSMTS.com

**FARMINGTON** HILLS TRAINORAMA 2009 MODEL RAILROAD & RAIL MEMORABILIA FLEA MARKET Costick Community Center, 28600 Eleven Mile Rd. October 4, 2009 10:00am-4:00pm. Admission \$5.00, children under 12 free w/adult. Info: Pierre Willermet, Model Club, PO Box 40225, Redford, MI 48240, 734-953-2546 pierre@hbc-benefitsandeducation.com

MI, KALAMAZOO: KALAMAZOO TRAIN SHOW AND SALE. Kalamazoo County Fair Grounds, Hazel Grey Building. October 25, 2009, 10:00am-3:30pm. Admission \$5.00, children 10 and under free. Operating layouts all scales, concession stand, door prizes. Sponsored by: Kalamazoo Model Railroad Historical Society. Check www.kmrhs.org free clinics updates.

MI: DETROIT AREA'S PREMIER ONE-DAY TRAIN SHOW & SALE. First Sunday in March and November. Presented by GRATIOT VALLEY RAILROAD CLUB. Adults \$5.50, under 12 free. 10am to 4pm. Layouts, clinics, door prizes, 400+ vendor tables. Details at www.gvrr.org or call

NM. LORDSBURG: LORDSBURG HIDALGO RAILROAD DAYS October 17-18, 2009. Prototype Displays; Model Railroads; Contests; Photographic Displays; Action Films and more. Inquiries: Dick Davis, 807 Duncan Hwy., Lordsburg, NM 88045, 575-590-0143.

OH, MAUMEE: TOLEDO ALL GAUGE TRAIN SHOW Lucas County Fairgrounds, Recreation Center, 2901 Key St. September 27, 2009, 11:00am-4:00pm. Adults \$5.00, children under 12 free. Five operating layouts, 300+ tables of sales items and information. Contact: 517-264-5705; E-mail: fotmrr@modelrailstuff.com

ALLENTOWN: LEHIGH VALLEY CHAPTER NRHS 33RD ANNUAL RAILROADIANA & MODEL RR SHOW & SALE. Sunday, September 27, 2009. Deiruff Senior High School, Irving & Washington St. 10am to 4pm, admission \$3.00 pp, under 12 FREE. Operating layouts, test track, food available. Pete: trolleys@ptd.net: 610-824-7730.

PA. HAWLEY: HAWLEY FIRE DEPT. TOY TRAIN SHOW & SALE. Hawley Fire Department. 10 Columbus Ave. October 11, 2009, 9:00am-3:00pm. Admission \$3.00, under 12 free with adult. Bill Delling, 618 Fern St., Hawley. PA 18428, 570-226-3206.

PA, HORSHAM: MAIN STREET TRAIN SHOW Keith Valley Middle School, 227 Meetinghouse Rd. Saturday, December 5, 2009, 10:00-4:00pm. \$5.00 adults, under 12 free. Al Wipplinger 215-672-7390, villagehdw@aol.com

PA, TAMAQUA: TRAIN SALE AND SWAP MEET. Salvation Army Building, 105 West Broad St. October 11, 2009. 8:00am-3:00pm. Model Trains and Railroadians Sales. \$3.00, under 12 free. 570-645-9133 or 570-952-4378, trainnut@ptd.net or dirtycoalman@hotmail.com

VANCOUVER: SOUTHWEST WASHING-TON MODEL RAILROADERS 36TH ANNU-AL GREAT TRAIN SWAP MEET Hudson's Bay High School Commons, 1206 E. Reserve St. Saturday, October 3, 2009, 9:30am-3:30pm. Admission \$4.00 for adults, \$2.00 for students, under 6 free. Contact Richard Renihan at 360-892-3410 or rirenihan@msn.com or www.swwamodelrailroaders.com

WV, CHARLESTON: 7TH ANNUAL KVRA MODEL TRAIN SHOW Coonskin Park, October 10, 2009, 10:00am-6:00pm: October 11, 2009, 12:00pm-6:00pm. Admission S3.00, under 12 free. Free parking, door prizes, refreshments. Tables \$20.00. Sponsor: Kanawha Valley Railroad Association. Info: www.kvra.org or Joe Horter 304-539-6721, horter@suddenlink.net or Bob Sutler, 304-543-9073.

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The way car (caboose) tracks at the Atchison, Topeka & Santa Fe's Barstow, Calif., yard were busy in 1948. Train crews ran out of this terminal in three directions – north, east, and west – and every freight train that arrived left with a different way car. Donald N. Nesbit photo

### Caboose operations

Cabooses have been missing from most freight trains since the 1980s, but for many of us they're still a necessity. And all of us who model some period before the caboose's demise can take advantage of the additional movement and interest they add to our operations.

Caboose functions are worth reviewing since they've been gone so long. A caboose was a shelter at the rear of the train for the conductor and flagman/brakeman, an observation post so they could keep watch on their consist, and an office for the conductor's paperwork. It had a pressure gauge to monitor the train's air brakes, and a brake valve for emergencies.

Some cabooses had combined air whistles and brake valves on the end platforms for signalling and braking during backup movements. Around 1950 cabooses began to carry two-way radios for conversations en route with the engine crew and wayside stations and towers.

The classic caboose could serve as living quarters at the train crew's away-from-home terminal. Usually it had a table with seats, a stove and sink, an icebox, bunks, and a toilet. Living aboard gradually became less common, but a few crews did so well into the 1950s, especially laying over at outlying terminals.

Previously in The Operators I've explained how the caboose was the base for flag protection at the rear of the train (September 2008 *Model Railroader*), and how it carried the markers showing that the train was complete (August 2007 MR).

Switching cabooses at crew terminals was a necessary operation for years. Until fairly late in the game, the mid-1960s on many roads, cabooses were assigned to specific crews. This was typically required in work-rules agreements that railroads were obliged to follow.

Crews worked on districts (or subdivisions) of 100 miles or more, and long-distance trains required several crews to reach their destination. Every time the crew changed, the old crew's assigned caboose was switched off the train and the new crew's caboose put on. Even if all cars in the train were going through, and the locomotive too, there was still some work for a yard engine.

If the yard on your layout is a crew-change point, assign some of your cabooses to the district to the east and others to the one to the west. Any train passing through gets its caboose changed. If you use a card-order system, the district assignments can be entered on each caboose's car card. Or letter division assignments on the

cabooses themselves, as some of the big roads did.

For a higher level of detail, note the time on your fast clock when an arriving caboose is spotted on the caboose track, and use that as an off-duty time for the incoming crew. Then don't use that caboose again until its crew is rested, at least eight fast hours later.

You might find yourself running out of assigned cabooses during an operating session, or at least running short of cars representing rested crews. That's a great excuse to buy or build more cabooses – as if you needed one.

More caboose tricks. If you run more trains in one direction than the other, even occasionally, you might run short of cabooses at one end of the subdivision. Prototype roads tried to anticipate this and balance cabooses just as they did locomotives. In anticipation of a westbound weekend rush, for example, a few eastbound trains at the end of the week could have two or more cabooses, as in a photo in The Operators last June.

Only the rear car of a multicaboose train necessarily carried a working crew, however. The other crews, paid to "deadhead" to the other end of the district, might ride a passenger train on their passes.

Regular runs such as a five-daya-week way freight often attracted high-seniority crews because of the regular hours. Their cabooses in effect became "assigned" to those trains and were thus subtracted from the pool available for through trains. Oh good, now you need still more cabooses!

These are just a few of the ways that prototypical procedures can let us have more fun with cabooses. Give them a try and it won't be just nostalgia making you glad you still use cabooses on your railroad. MR

#### More on our Web site

When is a caboose not a caboose? Andy shares some other terms for cabooses at www.ModelRailroader.com.



# BNSF Plying The Powder River Basin



# The BNSF

The new "Swoosh" logo (known by a variety of names, including "Heritage III" and "Bold Heritage"), is the new face of the railroadformerly-known-as the Burlington Northern & Santa Fe. Now simply "BNSF", the paint scheme is indicative the company's philosophy towards its progressive and vital

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